

**BEFORE**  
**THE PUBLIC SERVICE COMMISSION OF**  
**SOUTH CAROLINA**  
**DOCKET NOS. 2021-143-E AND 2021-144-E**

IN RE: Application of Duke Energy Progress, LLC for )  
Approval of Smart \$aver Solar as Energy )  
Efficiency Program )  
Application of Duke Energy Carolinas, LLC )  
forApproval of Smart \$aver Solar as Energy )  
Efficiency Program )  
\_\_\_\_\_ )

**PROPOSED ORDER OF THE**  
**SOUTH CAROLINA OFFICE**  
**OF REGULATORY STAFF**

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## **I. INTRODUCTION**

This matter comes before the Public Service Commission of South Carolina (“Commission”) by way of two applications filed by Duke Energy Progress, LLC (“DEP”) and Duke Energy Carolinas, LLC (“DEC”) (collectively referred to as “Duke Energy” or the “Companies”) pursuant to S.C. Code Ann. §§ 58-37-20, S.C. Code Ann. Regs. 103-823, the Rules of Practice and Procedure of the Commission, and Order Nos. 2021-32 and 2021-33.<sup>1</sup> Specifically, on April 23, 2021, DEP and DEC each submitted an Application for Approval of Smart Saver Solar as Energy Efficiency (“Application”) to be included as part of their suites of energy efficiency (“EE”) and demand-side management (“DSM”) programs beginning January 1, 2022. For the reasons discussed below, the Applications are denied.

## **II. EXECUTIVE SUMMARY**

As an initial matter, the proposed Smart Saver Solar as Energy Efficiency programs (“Programs”), would allow Duke Energy to recover lost revenues associated with customer-generators who apply for customer-generator programs on or after June 1, 2021, that otherwise would not be recoverable because of the prohibitions established by 2019 Act No. 62 (“Act No. 62”). Moreover, the Commission finds that it is not appropriate to classify the Programs as EE measures as proposed by Duke Energy. Such a classification represents a clear departure from the decades-long industry understanding of EE and creates unnecessary risks to customers, particularly because the Programs are not cost-effective. Further, Duke Energy has failed to show clear and meaningful synergies from the proposed pairing of Solar PV and the Winter BYOT program that would support a fundamental shift in our understanding of EE.

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<sup>1</sup> Commissioner Thomas Ervin has recused himself from participation in these dockets.

In addition, however, the Commission finds that Duke Energy has failed to carry its burden of proving by a preponderance of the evidence that the Programs will be cost effective. In that regard, the South Carolina Office of Regulatory Staff (“ORS”) presented the only quantitative and in-depth analysis on the critical issue of free-ridership in this proceeding. Based on that analysis, it is estimated that approximately four out of five projected Program participants would adopt Solar PV under the Commission’s Solar Choice Tariffs *even without* the additional proposed average incentive of over \$3,500. The costs of these Programs would be borne by all Duke Energy residential customers and, thus, the Programs would result in unreasonable subsidies paid for by non-participating customers. Additionally, if the Programs were approved, all residential customers would bear the cost of paying Duke Energy for its lost revenues associated with reduced self-consumption by Program participants and a program performance incentive. Even though self-consumed generation would provide the same benefits that would overwhelmingly occur *without* the Programs.

While Duke Energy criticized ORS’s free-ridership analysis, we find these criticisms unpersuasive given that it is undisputed ORS relied on the best-available company-provided data and methodology for assessing free-ridership. Rather than present its own analysis of free-ridership, Duke Energy relied on a questionable assumption of 10%. The Companies further asserted that the Commission should approve the Programs based upon the ability to determine their effectiveness during the Evaluation Measurement and Verification (“EM&V”) process post-approval. However, the Commission believes that it would be inappropriate to simply approve the Program, defer the cost-effectiveness analysis to EM&V, and expose customers to unknown and potentially unreasonable costs where there has been no sufficient initial showing that the Program will be cost-effective.

Our conclusion that the Program is not cost-effective also is supported by the Utility Cost Test (“UCT”) and Total Resource Cost test (“TRC”) results. Although Duke Energy asserts that the Programs pass the UCT test based upon conservative estimates, ORS presented ample testimony and evidence that the Companies’ estimates were inaccurate. And the record reflects that, after adjusting for these issues, the Programs did not pass the UCT test. In addition, while the Commission has previously found that the UCT is the primary cost effectiveness test, *see* Commission Order Nos. 2021-32 and 33, it is not the sole determinative test of whether a program is cost effective. Other tests, and in particular the TRC, which evaluates a proposed program from the perspective of customers as a whole, are valid tests that are appropriate for this Commission to consider when assessing the merits of proposed EE/DSM programs. Taking into account the TRC test results, which showed the Programs are not cost effective further supports the Commission’s conclusion that the Programs should not be approved as proposed by Duke Energy.

### **III. BACKGROUND**

#### **A. Application**

In September 2020, prior to the opening of Docket Nos. 2020-264-E and 2020-265-E (“Duke Energy Solar Choice Dockets”), Duke Energy, the Southern Environmental Law Center (“SELC”) – on behalf of the South Carolina Coastal Conservation League (“CCL”), Southern Alliance for Clean Energy (“SACE”), and Upstate Forever – Vote Solar, and the North Carolina Sustainable Energy Association (“NCSEA”) entered into a memorandum of understanding (“MOU”) whereby Duke Energy would propose to the Commission a program classifying Solar PV as an EE program. (Hr’g Ex. 1 pp. 3, 16; Hr’g Ex. 7 ). It does not appear that ORS was involved by the signatories to the MOU in the discussions to develop the substantive proposals ultimately adopted in the MOU. (Tr. 796:21–797:5). In furtherance of this MOU, DEC and DEP each filed

Applications on April 23, 2021, seeking Commission approval of the Programs. Duke Energy requested that the Programs be approved for inclusion in the Companies' suite of EE/DSM programs effective January 1, 2022, without the need to pre-file testimony and without a hearing. (Hr'g Ex. 1, pp.1, 7-8, 12, 14, 20-21).

The Programs as proposed would provide residential customer generators who apply to install rooftop solar and receive service under Rate RE within the Solar Choice Metering Program on or after January 1, 2022, with a one-time rooftop incentive payment ("Incentive"), the average amount of which Duke Energy estimated would be approximately \$3,500 based on a payment of \$0.36/Watt-DC. (App. p. 4; Program Tariff p.1; Hr'g Ex. 1 pp. 3-4, 10, 16-17, 22). To be eligible for the Program, customers also must become Solar Choice Metering customers "on or after January 1, 2022." (Program Tariff 1; Hr'g Ex. 1 pp. 10, 22). Eligible customers also would be required to comply with all installation and interconnection requirements of the Residential Solar Choice Rider ("Rider") and to enroll in the Winter BYOT Program for 25 years. (Program Tariff 1; *id.* at pp. 3-4, 10, 16-17, 22). Although customers would be able to unenroll from Winter BYOT, they then would be required to pay back the Incentive at the rate of \$200 per year, up to the amount of the Incentive. (Program Tariffs 1-2; Hr'g. Ex. 1 pp. 4, 10-11, 17, 22-23).

If approved as an EE/DSM program, the Companies would be eligible to recover the costs of the Program through their annual EE/DSM rider proceedings, including recovery of net lost revenues associated with participating Net Energy Metering ("NEM") customer generation as well as a portfolio performance incentive. (*See* App. p. 8; Hr'g Ex. 1 pp. 7-8, 20-21; Hr'g Ex 2 pp. 6, 8; Order Nos. 2021-32 and 2021-33; S.C. Code Ann. § 58-37-20).

**B. Procedural History**

1. Initial Filings

Duke Energy filed the Applications on April 23, 2021. CCL, SACE, NCSEA, and Upstate Forever filed a joint petition to intervene on July 7, 2021. The Solar Energy Industries Association (“SEIA”) filed a petition to intervene on July 14, 2021. Vote Solar filed a petition to intervene on July 15, 2021.<sup>2</sup> The Commission granted all petitions to intervene.<sup>3</sup> ORS is automatically a party of record pursuant to S.C. Code Ann. § 58-4-10(B).

On July 27, 2021, the Commission Clerk’s Office issued a Notice of Hearing and Prefile Testimony Letter establishing a procedural schedule in these dockets. Duke Energy filed a letter on August 13, 2021, requesting the Commission issue a Hearing Officer Directive consolidating and amending the procedural schedules and requesting that any surrebuttal testimony be conditioned on approval of a motion for leave to file surrebuttal testimony outlining the basis for requesting surrebuttal. SEIA and the Clean Energy Intervenors filed letters in support of Duke Energy’s request that same day. Additionally, ORS filed its response on August 19, 2021, supporting the Companies’ request for consolidation but opposing the other procedural changes proposed by the Companies. Duke Energy filed a reply on August 24, 2021. The Commission granted Duke Energy’s request to consolidate the dockets, issued a schedule for the remaining pre-filing dates in the consolidated dockets, and denied the Companies’ request to require leave to file surrebuttal.<sup>4</sup>

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<sup>2</sup> Throughout the proceedings in these dockets, Vote Solar, CCL, SACE, Upstate Forever, and NCSEA referred to themselves collectively as the “Clean Energy Intervenors.” For ease of reference, that moniker is used throughout this Order.

<sup>3</sup> See Order Nos. 2021-102-H, 2021-106-H, and 2021-107-H.

<sup>4</sup> See Order No. 2021-611.

On August 20, 2021, Duke Energy filed the Direct Testimony and Exhibits of Witness Timothy Duff,<sup>5</sup> and the Direct Testimony of Witness Lynda Powers.<sup>6</sup> On September 21, 2021, ORS filed the Direct Testimony and Exhibit(s) of Witnesses Brian Horii and O’Neil Morgan, and the Clean Energy Intervenors filed the Direct Testimony of Witness Eddy Moore. SEIA did not prefile any direct testimony.

On October 5, 2021, Duke Energy filed the Rebuttal Testimony and Exhibits of Witnesses Duff and Lon Huber and the Rebuttal Testimony of Witness Leigh C. Ford. On October 15, 2021, ORS filed Surrebuttal Testimony of Witnesses Horii and Robert Lawyer, as well as the Surrebuttal Testimony and Exhibits of Witness Morgan.<sup>7</sup> Also on October 15, 2021, the Clean Energy Intervenors filed the Surrebuttal Testimony of Witness Moore.

## 2. Prefiled Motions

After the filing of all parties’ direct testimony, on September 27, 2021, ORS filed a Motion for Summary Judgment and Oral Argument, asserting as a matter of law that the Commission should deny the Applications because the Programs, by requesting to recover lost revenues associated with customer-generators who became customer generators after June 1, 2021, violated the plain language of S.C. Code Ann. § 58-40-20(I) and therefore could not be approved.

On October 7, 2021, the Companies filed their Response in Opposition to Motion for Summary Judgment disputing that the Programs are indistinguishable from Solar Choice and outlining what Duke Energy alleged were the genuine issues of material fact for the Commission.

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<sup>5</sup> The Companies filed the Amended Direct Testimony and Exhibits of Witness Timothy Duff on October 11, 2021.

<sup>6</sup> At the time Duke Energy filed her prefiled testimony, Duke Energy’s Witness Lynda Powers’ legal name was Lynda Shafer.

<sup>7</sup> ORS filed the Revised Surrebuttal Testimony with Exhibits of Witness O’Neil Morgan on November 4, 2021.

The same day, the Clean Energy Intervenors filed their Joint Response to ORS's Motion for Summary Judgment also requesting that the Commission deny ORS's motion. The Clean Energy Intervenors asserted that the prohibitions of S.C. Code Ann. § 58-40-20(I) refer to a "very specific, and historical form of lost revenue" relating to NEM programs under 2014 Act No. 236 ("Act No. 236") and authorized by Commission Order No. 2015-194, while the Programs proposed to recover net lost revenues under S.C. Code Ann. § 58-37-20 and the DSM/EE mechanism approved by the Commission in Order Nos. 2021-32 and 2021-33 ("EE/DSM Mechanism"). (Clean Energy Intervenors Response pp. 5, 6). On October 14, 2021, ORS filed its Reply and renewed its request for oral argument.

With its Response in Opposition to Motion for Summary Judgment, Duke Energy filed its Motion to Affirm Legal Standards, requesting that the Commission: 1) affirm "that the Program will be reviewed under S.C. Code Ann. § 58-37-20 and the EE/DSM Mechanism," 2) affirm "that the limit of lost revenue recovery under Solar Choice is inapplicable to EE/DSM Programs," and 3) instruct the parties that the UCT is "the determinative test" for evaluating the cost-effectiveness of the Program. (Duke Energy Mot. to Affirm pp. 1, 8, 9). On October 18, 2021, ORS filed its Response to the Motion to Limit ORS Testimony, which asserted, among other things, that the UCT is the primary but not the exclusive cost-effectiveness test under the EE/DSM Mechanism. Duke Energy filed its reply brief on October 20, 2021.

On October 13, 2021, ORS filed a motion to strike portions of the rebuttal testimony of Duke Energy Witnesses Ford and Huber as improper legal opinion testimony and to strike portions of Witness Huber's rebuttal testimony for improperly raising new issues that were not responsive to issues raised by ORS or other parties of record in their direct testimony. On October 20, 2021, Duke Energy filed its Response in Opposition to ORS's motion to strike.

On October 18, 2021, ORS filed a second motion to strike portions of Clean Energy Intervenors Witness Moore's testimony as improperly responding to ORS's direct testimony and providing improper legal opinion testimony. The Clean Energy Intervenors filed their Response in Opposition to ORS's motion on October 25, 2021.

### **C. Hearing**

The evidentiary merits hearing was held in a hybrid virtual and in-person format (with the consent of the parties) over the course of six (6) days between October 28 and November 9, 2021. At the outset of the merits hearing, the Commission heard oral arguments on ORS's Motion for Summary Judgment and Duke Energy's Motion to Affirm Legal Standards and denied both motions. The Commission heard arguments on and ruled upon the motions to strike at the time the relevant prefiled testimony was tendered to be entered into the record.

Duke Energy presented the Direct Testimony of Witnesses Powers and Duff as a panel. Witness Powers' testimony provided an overview of the Programs. Witness Duff was qualified as an expert in the field of EE and DSM programs and measures, and testified about the requirements of energy efficiency programs, gave an overview of the Companies' positions and Applications, and responded to issues raised in the testimony of ORS Witnesses Horii and Morgan.

The Clean Energy Intervenors presented the Direct Testimony of Witness Moore. Witness Moore was qualified as an expert in clean energy policy and utility regulation, EE policy, and South Carolina energy policies. Witness Moore testified in support of the Programs as proposed by the Companies as a means to integrate Solar PV, TOU rates, and EE/DSM, and thereby reduce system peaks.

ORS presented the panel of Witnesses O'Neil Morgan and Robert Lawyer. Witness Morgan was qualified as an expert in EE/DSM program development and implementation. Witness

Lawyer was qualified as an expert in South Carolina NEM, Distributed Energy Resources (“DER”), and EE/DSM programs, program implementation and cost recovery. Witness Morgan discussed his concerns with the classification of Solar PV as EE as well as the costs of the Programs and the potential for recovery of net lost revenues associated with customer-generators. Witness Lawyer discussed how Solar PV and EE may both be considered DERs, but that Solar PV remains distinct from EE.

ORS then presented Witness Horii who was qualified as an expert in avoided costs, utility ratemaking, and DER, DSM, and EE cost-effectiveness evaluations. Witness Horii discussed his concerns with classifying Solar PV as EE, the potential ramifications and risks to customers of such a classification, and his cost-effectiveness analyses.

Duke Energy next called Witness Duff to present his rebuttal testimony responding to direct testimony of Witnesses Horii and Morgan. Duke Energy then presented the testimony of Witnesses Huber and Ford as a panel to present their rebuttal testimonies. Witness Ford was qualified as an expert in NEM, DER, and EE/DSM. Witness Ford testified regarding the distinctions between lost revenues associated with the Companies’ DER programs and net lost revenues provided for in the EE/DSM mechanism. Witness Huber was qualified as an expert in rate design in South Carolina NEM. Witness Huber testified as to why he believed that Solar PV could serve as an EE measure, discussed aspects of the cost-effectiveness of the Programs, and responded to Witness Horii’s testimony on cost-effectiveness tests and results.

The Clean Energy Intervenors presented the surrebuttal testimony of Witness Moore regarding the definition of EE under South Carolina law, the basis of the net lost revenue recovery under the Programs, and the cost-effectiveness tests and testing.

#### **IV. STATUTORY STANDARDS AND REQUIRED FINDINGS**

The Commission is required to adjudicate the matters arising in contested cases before it using the preponderance of the evidence standard. S.C. Code Ann. § 1-23-600(A)(5). In applying this standard, the Commission must examine the evidence of record to determine whether the applicants, DEC and DEP, proved by a preponderance of the evidence that its proposed Programs meet applicable statutory and other legal requirements.

South Carolina Code Ann. § 58-37-20 permits the Commission to adopt procedures that encourage electrical utilities and those public utilities providing natural gas services subject to the Commission's jurisdiction to invest in cost-effective energy-efficient technologies and energy conservation programs. The statute provides that those adopted procedures must:

provide incentives and cost recovery for energy suppliers and distributors who invest in energy supply and end-use technologies that are cost-effective, environmentally acceptable, and reduce energy consumption or demand; allow energy suppliers and distributors to recover costs and obtain a reasonable rate of return on their investment in qualified demand-side management programs sufficient to make these programs at least as financially attractive as construction of new generating facilities; require the Public Service Commission to establish rates and charges that ensure that the net income of an electrical or gas utility regulated by the commission after implementation of specific cost-effective energy conservation measures is at least as high as the net income would have been if the energy conservation measures had not been implemented. For purposes of this section only, the term "demand-side activity" means a program conducted by an electrical utility or public utility providing gas services for the reduction or more efficient use of energy requirements of the utility or its customers including, but not limited to, utility transmission and distribution system efficiency, customer conservation and efficiency, load management, cogeneration, and renewable energy technologies.

In considering the issues presented in this proceeding, the Commission also must consider the mandates and prohibitions established in S.C. Code Ann. § 58-40-20(I), which provides:

Nothing in this section, however, prohibits an electrical utility from continuing to recover distributed energy resource program costs in the manner and amount

approved by Commission Order No. 2015-194 for customer-generators applying before June 1, 2021. Such recovery shall remain in place until full cost recovery is realized. Electrical utilities are prohibited from recovering lost revenues associated with customer-generators who apply for customer-generator programs on or after June 1, 2021.

Act No. 62 further mandates that:

no costs or expenses incurred nor any payments made by the electrical utility in compliance or in accordance with this act must be included in the electrical utility's rates or otherwise be borne by the general body of South Carolina retail customers of the electrical utility without an affirmative finding supported by the preponderance of evidence of record and conclusion in a written order by the Public Service Commission that such expense, cost, or payment was reasonable and prudent and made in the best interest of the electrical utility's general body of customers.

In addition, pursuant to S.C. Code Ann. § 58-41-05, the Commission is required:

to address all renewable energy issues in a fair and balanced manner, considering the costs and benefits to all customers of all programs and tariffs that relate to renewable energy and energy storage, both as part of the utility's power system and as direct investments by customers for their own energy needs and renewable goals. The commission also is directed to ensure that the revenue recovery, cost allocation, and rate design of utilities that it regulates are just and reasonable and properly reflect changes in the industry as a whole, the benefits of customer renewable energy, energy efficiency, and demand response, as well as any utility or state-specific impacts unique to South Carolina which are brought about by the consequences of this act.

## **V. REVIEW OF THE EVIDENCE AND FINDINGS OF FACT**

### **A. Applicability of S.C. Code Ann. § 58-40-20(I) to the Program**

The parties to this proceeding advanced significantly different positions regarding whether and how S.C. Code Ann. § 58-40-20(I) applies to the proposed Programs. Specifically, and as discussed further below, ORS asserts that the plain language of S.C. Code Ann. § 58-40-20(I) makes clear the South Carolina General Assembly prohibited electrical utilities from recovering lost revenues resulting with programs associated with customer-generators who apply for customer generator programs on or after June 1, 2021. Duke Energy and the other parties of record assert,

however, that S.C. Code Ann. § 58-40-20(I) is intended “to prohibit utilities from recovering those lost revenues for solar customers that apply to interconnect on or after June 1,<sup>st</sup>” (Tr. p. 21, ll. 3-5) and does not preclude electrical utilities from recovering lost revenues experienced as a result of these programs. Because this is a threshold issue, the Commission finds it appropriate to address this matter at the outset of this Order.

1. ORS’s Position

South Carolina Code Ann. § 58-40-20(I)) provides that “[e]lectrical utilities are prohibited from recovering lost revenues associated with customer-generators who apply for customer-generator programs on or after June 1, 2021.” According to the Companies, only customers who became Solar Choice Metering customers “on or after January 1, 2022,” are eligible to participate in the Programs. The Companies assert that, because the Programs are proposed under S.C. Code Ann. § 58-37-20, which relates to EE/DSM programs, the lost revenue prohibition of S.C. Code Ann. § 58-40-20(I) does not apply to the Programs at issue in this proceeding. *See* Proposed Tariffs Duff Direct Exhibit No. 1, Duff Direct Exhibit No. 2 (“The Customer must become a new net metering customer on or after January 1, 2022....”); Ford Rebuttal Testimony at p. 7, l. 18. By comparison, ORS takes the position that, because the Companies asserted the Programs fall within the Solar Choice Program approved by Commission Order No. 2021-390 issued pursuant to S.C. Code Ann. § 58-40-20, Duke Energy is prohibited from recovering lost revenues associated with the Programs. (ORS Mot. Summ. Jmt. p. 3).

In support of its position, ORS stated that S.C. Code Ann. § 58-40-20 requires the Commission to examine express and specific factors created by the General Assembly for *all* aspects of NEM customer-generators. ORS therefore asserts that whether the Programs meet other applicable EE/DSM program requirements is irrelevant and does not insulate the Companies and

proposed Programs from compliance with all other applicable legal requirements, including those set forth in S.C. Code Ann. § 58-40-20. (ORS Reply pp. 3, 12). Because the Programs’ participants must have become customer generators after June 1, 2021, and because the Programs’ participants must participate in the Companies’ Solar Choice Tariffs approved by the Commission under Act No. 62, ORS avers that Duke Energy is precluded from recovering lost revenues associated with the Programs, despite the Companies’ attempt to characterize them as EE/DSM programs. ORS further asserts that Duke Energy acknowledges the Programs exist within the Solar Choice Program because the Applications clearly state that the Programs offer an incentive for Solar PV installed “within the Solar Choice Program.” (ORS Reply p. 4 (*citing* Applications 3–4; Hr’g Ex. No. 1 pp. 3-4)).

ORS also points out that S.C. Code Ann. § 58-40-20(I) was enacted as part of Act No. 62, well after the enactment of the EE/DSM statutes in the 1990’s. ORS therefore asserts that the General Assembly made the conscious decision when enacting Act No. 62 not to create a carve-out for S.C. Code Ann. § 58-37-20 exempting EE/DSM programs from the lost revenue collection prohibition of S.C. Code Ann. § 58-40-20(I). (ORS Reply p. 5 (*citing, inter alia, Centex Int’l v. S.C. Dep’t of Revenue*, 406 S.C. 132, 145, 750 S.E.2d 65, 72 (2013) (“[T]he legislature is presumed to be aware of prior legislation and does not perform futile acts.”))). In support of this position, ORS notes that the plain language of S.C. Code Ann. § 58-40-20(I) clearly prohibits the collection of lost revenues associated with or resulting from customer-generators applying after June 1, 2021, and that the statute’s “plain and unambiguous” language must be given effect. *Hodges v. Rainey*, 341 S.C. 79, 85, 533 S.E.2d 578, 581 (2000). Further, the prohibition is found in Title 58, Chapter

40, which is specific to net metering, as opposed to the more general Chapter 39, which broadly addresses distributed energy resources. (ORS Reply p. 7).<sup>8</sup>

While ORS asserts that the plain language of Section 58-40-20(I) should be given effect, even assuming there is some ambiguity in the statutory language, ORS posits that reading Section 58-40-20(I) in *pari materia* with Section 58-37-20 means that lost revenues prohibited by Section 58-40-20(I) are not eligible for recovery under Section 58-37-20. (ORS Reply p. 7 (*citing Joiner ex rel. Rivas v. Rivas*, 342 S.C. 102, 109, 536 S.E.2d 372, 375 (2000))). ORS agreed with Duke Energy and the Clean Energy Intervenors that the “lost revenues” prohibited by Section 58-40-20 may be calculated differently than the lost revenues of Section 58-37-20, but asserted that the plain language of Section 58-40-20 is still clear that those “lost revenues” are not recoverable where the General Assembly did not specifically exempt EE/DSM programs from the prohibitions of Section 58-40-20(I). (ORS Reply pp. 9–10). Thus, according to ORS, it is a distinction without a difference. (ORS Reply p. 10). Because both sections contemplate the recovery of lost revenues, it would be illogical and inharmonious to allow EE/DSM programs – which can include a wide range of measures and activities – to be an alternate means of recovering the very specific NEM customer-generator lost revenues prohibited by the more recent section, Section 58-40-20(I). *See* ORS Reply p. 7.

ORS also disagreed with the Clean Energy Intervenors position that ORS’s reading of Section 58-40-20(I) would render unlawful all EE/DSM programs for which customer-generators are otherwise eligible. In this regard, ORS contends Section 58-40-20(I) simply prohibits utilities from recovering program lost revenues that result from programs that exist pursuant to and that

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<sup>8</sup> Importantly, the prohibition of Section 58-40-20(I) is found in Chapter 40, which is specific to net metering, as opposed to a more general provision like Chapter 39 dealing with DERs in general. (ORS Reply p. 7).

are governed in part by S.C. Code Ann. § 58-40-20.<sup>9</sup> (ORS Reply pp. 8–9). Furthermore, ORS states Act No. 62 prohibits the Companies from utilizing the Programs, which fall within the Solar Choice Program, as a vehicle to recover lost revenues from customer self-generation under the Solar Choice Program by categorizing them as EE/DSM programs. In sum, ORS asserts there is no categorical bar to Solar Choice customer-generators participating in EE/DSM programs.

ORS further argued that the final sentence of Section 58-40-20(I) applies to all NEM customer-generators who apply for customer-generator programs on or after June 1, 2021, and does not solely and exclusively apply to the exact historical form of “net lost revenues” contemplated in Order No. 2015-194. ORS noted that the first sentence in Section 58-40-20 subsection (I) states “[n]othing in this section, however, prohibits an electrical utility from continuing to recover distributed energy resource program costs in the manner and amount approved by Commission Order No. 2015-194 for customer-generators applying before June 1, 2021.” According to ORS, the preceding subsections, 58-40-20(A)(3) and (G)(1), specifically direct the Commission to eliminate any cost shift or subsidization to the greatest extent practicable. Because customer-generators on the Act No. 236 1:1 rate approved in Commission Order No. 2015-194 created a cost-shift and subsidizations borne by non-customer-generator customers, ORS asserts that the purpose of Section 58-40-20(I) was to make clear that Act No. 62 was not intended to disrupt lost revenue recoveries authorized by Order No. 2015-194. Rather, ORS argued the section was to prohibit such practices going forward. ORS also argues this conclusion is reinforced by the second sentence of Section 58-40-20(I), which states “[s]uch recovery shall

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<sup>9</sup> “S.C. Code Ann. § 58-40-20(I) prohibits the Companies from recovering NEM lost revenues associated with customer generators under the proposed Programs because they fall squarely within the Solar Choice Program approved pursuant to S.C. Code Ann. § 58-40-20 and were merely grafted into the proposed EE/DSM programs.” ORS Reply, pp. 8-9.

remain in place until full cost recovery is realized.” ORS further argues that the concluding sentence of Section 58-40-20(I) is intended to end the Act No. 236 and Order No. 2015-194 subsidies from extending to net metering customer-generators who apply for customer-generator programs on or after June 1, 2021.

2. Duke Energy’s Position

According to the Companies, Duke Energy proposed the Programs under S.C. Code Ann. § 58-37-20 and the Commission-approved EE/DSM Mechanism and designed the Programs to achieve the thresholds required of EE/DSM programs. (Duke Energy Response p. 2). Duke Energy asserts that S.C. Code Ann. § 58-37-20 casts a wide net for demand-side management programs and that the Programs consist of a package of requirements and features that comply with the comprehensive set of laws and regulations applicable to EE/DSM programs. (Duke Energy Response pp. 2–3, 19). According to Duke Energy, ORS selectively applies criteria from S.C. Code Ann. § 58-40-20 limiting recovery of lost revenue as related to Solar Choice NEM programs as an *additional* requirement applicable to the Programs. (Duke Energy Response pp. 3).

Duke Energy argues that Solar Choice customers would not be required to participate in the Programs and, if they do participate, must enroll in Winter BYOT. Therefore, Duke Energy asserts that the Companies should be able to recover the same costs as with any other EE/DSM program on the claimed basis that the Programs provide customer and system benefits in accordance with the Commission-approved EE/DSM Mechanism. (Duke Energy Response p. 6).

Duke Energy also maintains that Act No. 62, through S.C. Code Ann. § 58-40-20, required the Commission to establish the next generation of NEM in South Carolina, including leaving behind the Act No. 236 incentive structure – which included utility recovery of all lost revenues – for more complex rate designs. (Duke Energy Response p. 7). Duke Energy further notes that the

Commission, in Order No. 2021-390, approved the Solar Choice Tariffs and found that they would be “a platform for customers to adopt other DERs in the future, including energy efficiency measures[.]” (Duke Energy Response pp. 7–8 (*citing* Order No. 2021-390 at p. 42)).

On this basis, Duke Energy claims that the Programs are EE/DSM programs, not Solar Choice programs, and, therefore, that Section 58-40-20(I) does not govern recovery of lost revenues under the Programs. (Duke Energy Response pp. 12–13). Instead, Duke Energy asserts the Programs fall under Section 58-37-20, which mandates that the utility’s “net income . . . is at least as high as the net income would have been if the energy conservation measures had not been implemented.” This “net income” is referred to in the EE/DSM Mechanisms as “net lost revenues,” and, accordingly Duke Energy opines that “net income” and “net lost revenues” in the EE/DSM context are entirely distinct from “lost revenues” as contemplated under S.C. Code Ann. § 58-40-20. (Duke Energy Response pp. 12–13). Duke Energy Witness Ford also asserted there is a distinction between lost revenues associated with Act No. 236 NEM customers and net lost revenue recovery associated with EE/DSM programs. (Ford Rebuttal p. 3). According to Witness Ford, the Companies claim they are not proposing to recover lost revenues associated with Solar Choice customers as contemplated under S.C. Code Ann. § 58-40-20(I) and Order No. 2015-914. (Ford Rebuttal pp. 4–5). Instead, Duke Energy asserted that lost revenues in Order No. 2015-194 and S.C. Code Ann. § 58-40-20(I) refer to those revenues associated with providing the 1:1 retail rate credit for Act No. 236 NEM customers. The Companies argue that these lost revenues are recovered via the Companies’ DER Programs and are entirely distinct from net lost revenue recovered via the EE/DSM Mechanism.

Witness Ford further testified that net lost revenue is defined under the EE/DSM mechanism as “revenue losses due to new DSM or EE Measures, net of fuel costs and non-fuel

variable operating and maintenance expenses avoided at the time of the kilowatt-hour sale(s) lost due to the DSM or EE Measures.” On this basis, Witness Ford testified that the EE/DSM mechanism is different from the methodology for accounting for NEM-related lost revenues established in Order No. 2015-194, which she described as “the net estimated under-recovered (lost revenue) or over-recovered revenue (net benefit) from net metering customers under existing rate structures, based on the Utility’s cost of service study within its last general rate case.” (Ford Rebuttal pp. 4–5).

According to Witness Ford, ORS also ignores two important distinctions: 1) that net lost revenues for EE/DSM programs are associated with the EE/DSM program rather than the *source* of the savings, and 2) “that NEM lost revenues are calculated using the total generator output whereas EE net lost revenues only look at the reduction in consumption.” (Ford Rebuttal pp. 6–7). Additionally, she asserted that NEM lost revenues are different from EE net lost revenues in that EE net lost revenues are adjusted for net found revenues and can only be recovered for 36 months, as opposed to the entire length of time an NEM customer receives the 1:1 retail rate credit. (Ford Rebuttal p. 7). Witness Ford further testified that the Programs are not the same as the Solar Choice Tariffs because Program participants must be all-electric customers and must enroll in Winter BYOT, which are not requirements for participating in the Solar Choice Tariffs alone.

Duke Energy also states that, if the General Assembly intended to modify Section 58-37-20 via Act No. 62, it would have expressly done so. The Companies also claim that Sections 58-37-20 and 58-40-20(I) must be understood to discuss distinct concepts – “net income” and “lost revenues” – because the statutes use different terms, and a legislative body generally uses a particular word consistently across related statutes. (Duke Energy Response p. 15 (*citing Erlenbaugh v. United States*, 409 U.S. 239, 243 (1972))). Thus, Duke Energy takes the position

that, if the General Assembly intended to prohibit recovery of net lost revenue under EE programs through Section 58-40-20(I), it would have used the same term as Section 58-37-20. (Duke Energy Response p. 15).

3. Clean Energy Intervenors' Position

According to the Clean Energy Intervenors, ORS's interpretation of S.C. Code Ann. § 58-40-20(I) 1) misconstrues Act No. 62, 2) ignores applicable law governing EE/DSM programs, 3) leads to the absurd result that customer-generators cannot participate in EE/DSM programs, and 4) contravenes the express intent of Act No. 62 to promote solar and encourage innovation. (Clean Energy Intervenors Response pp. 2, 9, 11).

First, the Clean Energy Intervenors claim that ORS misconstrues Act No. 62 by reading the last sentence of S.C. Code Ann. § 58-40-20(I) in isolation from the first two sentences of that section and from the purpose of the statute and the policy of the law. (Clean Energy Intervenors' Response p. 4). Specifically, they state that, read as a whole, S.C. Code Ann. § 58-40-20(I) sets forth two clear objectives: 1) to ensure that utilities continue to recover DER program costs under the predecessor NEM program approved in Order No. 2015-194 until full cost recovery; and 2) to prohibit utilities from recovering those "lost revenues" that were authorized under Order No. 2015-194 for solar choice metering tariffs that went into effect on or after June 1, 2021. (Clean Energy Intervenors Response pp. 4–5). They further posit that the last sentence of S.C. Code Ann. § 58-40-20(I) does not refer to *all* "lost revenues," but must be read in light of the preceding sentences and only applies to the "very specific, and historical form of lost revenue" authorized by Commission Order No. 2015-194 relating to NEM programs under Act No. 236. (Clean Energy Intervenors Response pp. 5–6 (*citing Fox v. Moultrie*, 379 S.C. 609, 614 (2008))). In sum, the Clean Energy Intervenors assert that Section 58-40-20(I) is not a blanket prohibition on all lost revenue

recovery for EE/DSM programs that may be “associated” with customer-generators. (Clean Energy Intervenors Response p. 5).

Second, the Clean Energy Intervenors argue ORS focuses only on one sentence in S.C. Code Ann. § 58-40-20(I) and ignores S.C. Code Ann. § 58-37-20, which applies to programs that meet the definition of “demand-side activity” in that section. (Clean Energy Intervenors Response pp. 6–7). Because “demand-side activity” is broadly defined and includes renewable energy technologies that reduce customer energy requirements, the Clean Energy Intervenors assert that the Programs, which use Solar PV to reduce the energy requirements of Duke Energy’s customers, fit squarely within this section. Therefore, the Clean Energy Intervenors aver that S.C. Code Ann. § 58-37-20 authorizes the Companies to recover costs and obtain a reasonable rate of return on their investment for the Programs. (Clean Energy Intervenors’ Response p. 7). On this basis, the Clean Energy Intervenors argue the Companies are not asking to recover “lost revenue” under Section 58-40-20(I), but “net lost revenues” authorized under Section 58-37-20 and the EE/DSM Mechanism of Order Nos. 2021-32 and 2021-33.<sup>10</sup>

According to Witness Moore, the lost revenues prohibited under Solar Choice are completely distinct from the net lost revenues recovered through the EE/DSM rider. (Moore Surr. 5:3–5). In this regard, Witness Moore testified that Act No. 62 “prohibited utilities from recovering lost revenues merely based on a customer’s decision ... to exercise a ‘Solar Choice.’” (Moore Surr. p. 5:19–21 (internal punctuation omitted)). Thus, he suggests that Act No. 62 represented a shift

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<sup>10</sup> The Clean Energy Intervenors further argue that “net lost revenues” are factually distinct from “lost revenue,” which is specific to the “lost revenue” utilities were allowed to recover under Act No. 236 NEM programs. They state Act No. 236 “lost revenue” encompassed both customer-generator bill savings from behind-the-meter consumption and bill savings from exports. By comparison, the Clean Energy Intervenors assert the Programs only request recovery of net lost revenues associated with behind-the-meter consumption. They also note that the Commission determined behind-the-meter consumption is equivalent to EE in Docket No. 2019-182-E (“Generic NEM Docket”). (Clean Energy Intervenors Response p. 8 (*citing* Order No. 2021-569 at pp. 9–10)).

from Act No. 236, where “lost revenues were triggered, as a matter of right to the utility, whenever a customer decided to adopt solar, even if the utility had nothing to do with the decision.” (Moore Surr. pp. 5–6). He also claimed that “[w]hile Act No. 62 prohibited the collection of lost revenues related to the ongoing customer solar market, it did not prohibit the utility and the Commission from taking action to accelerate or expand behind-the-meter solar energy consumption over and above that market, if such additional increment of behind the-meter solar energy consumption is shown under the authorized EE/DSM framework to benefit all ratepayers by reducing the cost of utility service.” (Moore Surr. p. 6:8–13).

He further stated that “[t]he factual distinction between the regular solar market and additional EE/DSM solar is further underlined by the fact that the EE-based net lost revenue calculation is different and does not require Commission determination of an 11-factor ‘value of solar.’” (Moore Surr. p. 6:14–17). Instead, he argued that the EE approach to solar under the Program counts only the portion of customer solar production that is self-consumed behind the meter, not exports, suggesting the underlying basis for the calculation is distinct and different from Act No. 236-based Solar Choice lost revenues. (Moore Surr. p. 6:17–21). In sum, Witness Moore testified that, [i]f the Program expands the adoption of energy-saving measures by increasing behind-the-meter consumption at a cost which is net-beneficial for all customers, then net-lost revenue recovery is both appropriate and required. (Moore Surr. pp. 6–7).

Third, the Clean Energy Intervenors assert that ORS’s interpretation of S.C. Code Ann. § 58-40-20(I) leads to the absurd result that the Companies could not offer EE/DSM programs to customer-generators. (Clean Energy Intervenors Response p. 9). If Section 58-40-20(I) prohibits recovery of lost revenues *associated* with customer-generators, then the Clean Energy Intervenors claim that a utility would not be able to recover lost revenues caused by *any* customer-generator.

(Clean Energy Intervenor Response p. 9). They further state that this result would be plainly contrary to the intent of Act No. 62 because it would bar customer-generators from participating in EE/DSM programs. This would be so even though Act No. 62 did not modify the EE portion of Title 58, and even though Act No. 62 establishes that “every customer” has an affirmative right “to a rate schedule that offers the customer a reasonable opportunity to employ...energy efficiency....” (Clean Energy Intervenor Response pp. 9–11 (*citing, inter alia*, S.C. Code § 58-27-845(B))).

Fourth, the Clean Energy Intervenor claim ORS wrongly applies the broader policy goals of Act No. 62 to the Programs by failing to interpret the provisions of Act No. 62 as a harmonious whole. (Clean Energy Intervenor Response p. 11). Specifically, they assert the General Assembly intended customer-sited solutions like Solar PV, EE, and demand response to develop together in new and innovative combinations. *See* S.C. Code Ann. § 58-41-05. The Clean Energy Intervenor further suggest that the General Assembly intended to expand the opportunity to support solar, access to solar, and to continue enabling market-driven, private investment in DER. S.C. Code Ann. § 58-40-20(A) and (A)(1). (Clean Energy Intervenor Response p. 12).

#### 4. Commission Analysis and Conclusion

Act No. 62 stated the intent of the General Assembly which was to, among other things “build upon the successful deployment of solar generating capacity through Act No. 236 to continue enabling market-driven, private investment in distributed energy resources across the State.” S.C. Code Ann. § 58-40-20(A)(1). Act No. 62 specifically provided that electrical utilities “shall make net energy metering available to all customer-generators who apply before June 1, 2021, according to the terms and conditions provided to all parties in Commission Order No. 2015-194.” S.C. Code Ann. § 58-40-20(B). Because Order No. 2015-194 specified the net metering

terms were not available after January 1, 2019, Act No. 62 extended the availability of the terms of Order No. 2015-194 to May 31, 2021. *See id.*

With this in mind, we believe it is evident that the purpose of Section 58-40-20(I) is to delineate a boundary between Act No. 236 and Act No. 62. Under this section, utilities may recover NEM and DER costs as approved in Order No. 2015-194 for all customer-generators who apply before June 1, 2021. However, as of June 1, 2021, customers may not apply to become customer-generators under the terms of Order No. 2015-194, and utilities may not recover lost revenues for customer-generators who apply to become customer-generators after May 31, 2021. *See 16 Jade Street, LLC v. R. Design Const. Co., LLC*, 398 S.C. 338, 343, 728 S.E.2d 448, 450 (2012); *CFRE, LLC v. Greenville Cty. Assessor*, 395 S.C. 67, 74, 716 S.E.2d 877, 881 (2011) (holding that a statute should be so construed that “no word, clause, sentence, provision, or part shall be rendered surplusage or superfluous.”) (internal citations omitted). If this sentence in S.C. Code Ann. § 58-40-20(I) were only intended to apply to lost revenues stemming from that 1:1 rate created in Order No. 2015-194, it would be unnecessary and make no sense, because that rate would not be available to new customers as of June 1, 2021.

Thus, the Commission concludes that the final sentence in Section 58-40-20(I) does not apply exclusively to lost revenues associated with Commission Order No. 2015-194. We agree with ORS that it would not have been necessary for the General Assembly to state that “[e]lectrical utilities are prohibited from recovering lost revenues associated with customer-generators who apply for customer-generator programs on or after June 1, 2021” if “lost revenues” as used in that section applied solely and exclusively to the exact historical form of “lost revenues” authorized under Order No. 2015-194.

Instead, Section 58-40-20(I) marks the General Assembly's shift away from unnecessary and unreasonable subsidization generally. The subsidies that Act No. 236 and Order No. 2015-194 provided for customer-generators and electrical utilities to nurture solar through its infancy in South Carolina would no longer be available for customer-generators applying on or after June 1, 2021. But to “build upon the successful deployment of solar generating capacity through Act No. 236” and “to continue enabling market-driven, private investment in distributed energy resources across the State” while “avoid[ing] disruption to the growing market,” the General Assembly directed the establishment of “solar choice metering requirements that fairly allocate costs and benefits to eliminate any cost shift or subsidization associated with net metering to the greatest extent practicable.” S.C. Code Ann. § 58-40-20(A). The elimination of subsidies would be accomplished through, among other things, a study in a generic docket of “the costs and benefits of the current [NEM] program” and the “value of the energy produced by customer-generators,” as well as through the establishment of a successor “solar choice metering tariff for customer-generators to go into effect for applications received after May 31, 2021.” S.C. Code Ann. § 58-40-20(C), (F).

This is the fuller context in which to read Section 58-40-20(I). The first two sentences establish that the terms of Act No. 236 and Order No. 2015-194 will apply to customer-generators applying under the first-generation NEM program, including the “make whole” recovery of costs and lost revenues allowed to electrical utilities under Order No. 2015-194. The final sentence of Section 58-40-20(I) expresses that, for customer-generators “who apply for customer-generator programs on or after June 1, 2021,” the Act No. 62 standards of eliminating subsidization to the greatest extent practicable will apply. And “utilities are prohibited from recovering lost revenues associated with” those new, Solar Choice Tariff customer-generators. *Id.*

This reading is supported by the context that Act No. 62 extended the expiration date of the 1:1 rate, which was January 1, 2021, under Order No. 2015-194, until May 31, 2021. *See* S.C. Code Ann. § 58-40-20(B) (“An electrical utility shall make net energy metering available to all customer-generators who apply before June 1, 2021, according to the terms and conditions provided to all parties in Commission Order No. 2015-194.”). Because the 1:1 rate would soon end on May 31, 2021, the General Assembly had no obligation to make an otherwise unnecessary statement that utilities could not continue. If the final sentence were only intended to apply to lost revenues stemming from the 1:1 rate, it would be unnecessary because that rate would not be available to new customers as of June 1, 2021. Accordingly, this sentence cannot exclusively apply to customer-generators who applied for programs in existence due to Commission Order No. 2015-194, but must apply to all net metering customer-generators who apply for customer-generator programs on or after June 1, 2021.

Such a reading of the plain language of Section 58-40-20(I) fully harmonizes the intent of the General Assembly to build on the deployment of solar under Act No. 236 by transitioning to the successor Solar Choice Tariffs as a fair, non-disruptive, market-based solution, which, on a going-forward basis, eliminates cost-shift in NEM to the greatest extent practicable. *See* S.C. Code Ann. § 58-40-20(A), (B).

Further, if we were to go beyond the plain language and read Act No. 62 *in pari materia* with Section 58-37-20, we conclude that EE cost recovery is limited by the more recently enacted provisions of Act No. 62 in Section 58-40-20(I). *Joiner ex rel. Rivas v. Rivas*, 342 S.C. 102, 109, 536 S.E.2d 372, 375 (2000); *see also Centex*, 406 S.C. at 145, 750 S.E.2d at 72 (“the legislature is presumed to be aware of prior legislation and does not perform futile acts”); *State v. McKnight*, 352 S.C. 635, 648, 576 S.E.2d, 168, 175 (“There is a presumption that the legislature has

knowledge of previous legislation as well as of judicial decisions construing that legislation when later statutes are enacted concerning related subjects.”); *Duvall v. South Carolina Budget and Control Bd.*, 377 S.C. 36, 46, 659 S.E.2d 125, 130 (2008) (“When the Legislature adopts an amendment to a statute, this Court recognizes a presumption that the Legislature intended to change the law.”).

We also note that Section 58-40-20(I) is the more specific statute. Where there is one statute addressing an issue in general terms and another statute dealing with the identical issue in a more specific and definite manner, the more specific statute will be considered an exception to, or a qualifier of, the general statute and given such effect.” *Denman v. City of Columbia*, 387 S.C. 131, 138, 691 S.E.2d 465, 468 (2010). Section 58-40-20(I) addresses NEM, and even more specifically, it addresses Solar Choice, within which these Programs fall. By contrast, Section 58-37-20 applies to a whole range of activities, “including, but not limited to, utility transmission and distribution system efficiency, customer conservation and efficiency, load management, cogeneration, and renewable energy technologies.” S.C. Code Ann. § 58-37-20.<sup>11</sup> Further, Section 58-37-20 discusses “net income,” while Section 58-40-20(I) discusses “lost revenues associated with customer generators who apply for customer-generator programs on or after June 1, 2021.” Viewed in context, “net income,” therefore, is a much more general concept than “lost revenues,” which supports giving primacy to the more specific prohibition on recovery of lost revenues associated with customer-generators applying after May 31, 2021. *See id.*; *see also Criterion Ins. Co. v. Hoffmann*, 258 S.C. 282, 293, 188 S.E.2d 459, 464 (1972). (“General and special statutes should

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<sup>11</sup> Importantly, the final sentence of S.C. Code Ann. § 58-40-20(I) falls directly within the Net Energy Metering chapter of the Code and not within the Distributed Energy Resources chapter. Accordingly, while there may be a link between this sentence and use of NEM as a DER, to divorce this sentence from all other net energy metering created pursuant to S.C. Code Title 58, Chapter 40 ignores the plain language of the statute.

be read together and harmonized if possible. But to the extent of any conflict between the two, the special statute must prevail.”).

Thus, we believe that any conflict between the requirements of the provisions of Sections 58-37-20 and 58-40-20(I) must be resolved in favor of 58-40-20(I). *See Denman*, supra; *see also CFRE*, 395 S.C. at 77, 716 S.E.2d at 882 (“The construction of a statute by the agency charged with its administration will be accorded the most respectful consideration and will not be overruled absent compelling reasons.”). This conclusion also is consistent with the manifest intent of the General Assembly in passing Act No. 62 to transition away from the NEM lost revenue recovery model of Act No. 236 and Order No. 2015-194. We therefore reject Duke Energy’s and the Clean Energy Intervenors’ arguments that, simply because the proposed Programs comply with the requirements of Section 58-37-20 and the Commission’s EE/DSM Mechanism, they are not also subject to the requirements of Section 58-40-20(I).

Regarding the dispute between “net lost revenues” and “lost revenues,” it is clear that to encourage electrical utilities to implement EE programs, South Carolina law allows the utilities to recover net lost revenues realized as a result of the program to ensure “that the net income of an electrical or gas utility regulated by the Commission after implementation of specific cost-effective energy conservation measures is at least as high as the net income would have been if energy conservation measures had not been implemented.” S.C. Code Ann. § 58-37-20. Under the proposed Programs, Duke Energy would be able to recover net lost revenues associated with the implementation of EE measures for the first thirty-six months, the cost of which would be borne by the Companies’ residential customers. If the Programs were implemented, DEC estimates an additional \$6,733,203 and DEP estimates an additional \$890,836 in additional costs will be

incurred over five years; this figure includes \$3,015,969 in net lost revenue for DEC and \$539,708 for DEP.

South Carolina Code Ann. § 58-40-20(I) and S.C. Code Ann. § 58-37-20 both functionally discuss the recovery of lost revenues by an electrical utility. Though they use slightly different terminology, and the sections have specific individual purposes, there is factual, functional overlap between “net income” and “lost revenues” in the context of the Programs, as explained by ORS Witness Morgan. It appears there is no disagreement that the two concepts of “net lost revenues” and “lost revenues” factually overlap. Per Witness Ford, NEM lost revenues are calculated using the total generator output whereas EE net lost revenues only look at the reduction in consumption.” (Ford Rebuttal pp. 6–7). But “total generator output” includes the reduction in grid consumption. Witness Moore also argued that the EE approach to solar under the Programs counts only the portion of customer solar production that is self-consumed behind the meter, not exports. (Moore Surr. p. 6:17–21). But this ignores the fact that the EE net lost revenue calculation still includes self-consumption, just as do NEM lost revenues. Therefore, we agree with Witness Morgan that lost revenue is lost revenue, whether it is derived from “NEM total generator output” or “reduced grid energy usage due to self-consumption.” (Morgan Surr. p. 2).

In reaching this conclusion, the Commission is mindful that “lost revenues” is the more specific term and Section 58-40-20(I) was adopted later in time. Further, this is the first occasion in which a utility has sought to incorporate an NEM program into an EE/DSM program in South Carolina, and indeed the Programs would be the first and only of their kind nationally. (Tr. p. 337:17–20). Accordingly, there would have been no basis for the General Assembly to make a specific amendment to Section 58-37-20 to indicate that it was modified by Section 58-40-20(I), as argued by Duke Energy. And, by contrast, the General Assembly did not create a carveout to

expressly state that Section 58-40-20 did *not* affect eligible net income as defined under Section 58-37-20. Accordingly, reading these two provisions together dictates that an EE/DSM program that incorporates Solar Choice cannot create an alternate method by which the Companies recover lost revenues associated with Solar Choice customer-generators.

In addition, free ridership appears to us to be a critical assumption for assessing what lost revenues associated with customer-generation are attributable to the Program and potentially eligible for recovery, and those lost revenues associated with customer-generation that would have accrued to the benefit of customers without customers having to pay the utility net lost revenues and program performance incentives. If there is a high level of free-ridership, the Companies may capture lost revenues through the Program that, without the Program, they otherwise would not have. Under this scenario, the benefits of customer-generation would be allocated *away* from customers *to* the Companies, because the customer-generation, and therefore the benefits of that generation, would have occurred anyway. If the best estimate of free ridership is 79% and not 10%, then, from the utility perspective, the Programs essentially would spin straw (non-recoverable lost revenues due to customer-generation and customer-generation consumed behind-the-meter) into gold (recoverable lost revenue) while giving customers little or nothing in return. It is a zero-sum game in which the Companies, solar installers, and participating customers “win,” while the general body of customers pay for the full cost of that victory from their own pockets. Thus, the Programs would allow Duke Energy to collect lost revenues whenever a customer decided to adopt solar under the Programs rather than under the Solar Choice tariff alone, even if the incentives paid under the Programs did not cause the customer to install Solar PV. (*See Moore Surr.* pp. 5–6).

We also are not persuaded that EM&V is a sufficient or appropriate check that warrants allowing the Programs to go forward. First, under the DSM/EE Mechanism, and consistent with

58-37-20, there should be no EM&V unless a proposed program demonstrates a likelihood of being cost-effective in the first place. Without such a showing, a program should not be approved as a matter of law and of sound policy. *See also* Moore Surr. p. 6:8–13 (“Act No. 62 . . . did not prohibit the utility and the Commission from taking action to accelerate or expand behind-the-meter solar energy consumption . . . **if** such additional increment . . . is shown under the authorized EE/DSM framework to benefit all ratepayers by reducing the cost of utility service.”) (emphasis supplied).

It makes little sense for a utility, intervenors, ORS, and this Commission to expend resources on an EM&V process absent an initial threshold showing that a proposed program is expected to be cost-effective. Indeed, there would be no need for a cost-effectiveness review in the first place, as every conceivable program could simply be waived through at the application stage subject to EM&V on the back end. We do not believe that is an efficient use of resources or sound regulatory policy. Such a policy also would fail to incentivize utilities to prioritize and seek out the most promising potential EE/DSM programs; in all likelihood the effect could be the opposite. Further, even if EM&V successfully prevented recovery of all lost revenues not properly attributable to an EE/DSM program, customers still would be asked to pay for the costs of an approved program, including as in this case, the substantial costs of ineffectual subsidies. Without an initial showing of cost-effectiveness, we do not believe that this Commission should exercise the authority of the State to force a transfer of resources from all residential customers to a specific subset of customers or to specially interested groups. Nor do we believe we are authorized to do so under Section 58-37-20.

We also strongly emphasize that in no way are Solar Choice customers ineligible to participate in approved EE/DSM programs. We agree with the Clean Energy Intervenors that this would be an absurd result, and we do not attribute to ORS’s interpretation of Section 58-40-20(I)

such an import.<sup>12</sup> Solar Choice customer-generators can participate in EE programs and utilities can still recover lost revenues resulting from approved EE measures installed by Solar Choice customer-generators to the extent such cost recovery is not inconsistent with provision of law. *See also Florence County Democratic Party v. Florence County Republican Party*, 398 S.C. 124, 128, 727 S.E.2d 418, 420 (2012) (“This Court will not construe a statute in a way which leads to an absurd result or renders it meaningless.”). The Commission makes the narrow and specific finding that lost revenues resultant from these Programs are prohibited by Section 58-40-20(I) because these Programs exist *only because* of S.C. Code Ann. § 58-40-20, the incentives exist for Solar PV installed under a rate schedule within the Solar Choice Program, and because participants are necessarily customer-generators applying subsequent to June 1, 2021.

## **B. Solar PV as Energy Efficiency**

### **1. ORS’s Position**

ORS Witness Morgan testified that “[i]t is not proper to classify customer-generator Solar PV systems as EE[.]” (Morgan Direct p. 3:17). Drawing on his experience as an engineer and 16 years of experience developing and implementing EE and DSM programs, Witness Morgan testified that the Program’s classification of Solar PV as EE was inconsistent with well-recognized industry definitions of EE such as that of the United States Energy Information Administration (“EIA”). (Morgan Direct p. 4:6–5:10). While customer-sited PV “is a source of energy,” he further stated that it “in no way reduces the consumption of any end-use household equipment for the customer-generator.” (Morgan Direct pp. 1:7–17, 5:4–6; Morgan Surr. p. 4:12–14; *see also* Tr.

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<sup>12</sup> *See* ORS Reply, p. 8, “Through its Motion, ORS did not indicate, nor did it intend to indicate, that electric utilities may not recover lost revenue associated with *appropriate* EE/DSM programs. Similarly, ORS does not argue that the statute prohibits the Companies from recovering lost revenues associated with every customer-generator that participates in an approved EE/DSM program.”

pp. 470–472). In addition, he pointed out that Duke Energy’s EE/DSM Nonresidential Smart Saver Programs Tariffs expressly state that electric generation is not EE suggesting that the Companies themselves acknowledge Solar PV is not considered EE. (Morgan Surr. p. 4:14–17 (also see Tr. Surrebuttal Ex. OOM-1)). He further noted that no other jurisdiction has approved Solar PV as an EE program, and industry-standard definitions of DERs recognize EE and Solar PV as distinct resource categories. (Morgan Direct p. 5:11–19; Lawyer Surr. pp. 2–3).

ORS Witness Horii, who has over 30 years of experience in the energy industry and nearly thirty years of experience directly related to EE, stated that the industry has always recognized that Solar PV is not EE. (Horii Direct p. 1:9, 3:4, 6:8–9). And while the Commission can approve incentives for Solar PV, Witness Horii opined that it would be improper to do so on the grounds that Solar PV is an EE device and such a request should be carefully considered because of the unique treatment of lost revenues and shareholder incentives available for EE programs. (Horii Direct p. 6:2–15). Further, Witness Horii disputed the Companies’ assertion that because Solar PV reduces energy consumption from the Companies’ grid that Solar PV is EE. (*See* Horii Direct p. 8:1–10).

Specifically, he stated that, while EE reduces actual energy usage, Solar PV *replaces* some utility electricity with customer-generated electricity. Witness Morgan also testified that although self-consumed generation and EE/DSM measures are decrements to system load, this does not equate to Solar PV being accurately characterized as an EE/DSM measure. (Morgan Surr. p. 7:6–8). ORS Witness Horii also points out that the Companies draw an erroneous parallel between the Program and actual EE programs through a discussion of reductions in energy consumption from Duke Energy’s grid. (Horii Direct p. 8). Witness Horii asserts that actual EE programs reduce energy usage at the device level, instead of reductions in purchases by customers due to self-

generation. (*Id.*) Thus, he testified that simply because a program may reduce customers' usage of the grid does not inherently make a program EE. (Horii Direct p. 8:1–9:2). He further stated that this conclusion is supported by the plain language definitions of EE used by the EIA and the Environmental and Energy Study Institute. (Horii Direct p. 8:12-20). Witness Horii also disputed Witness Duff's assertion that S.C. Code Ann. § 58-37-20 defines EE/DSM programs to specifically include programs implemented for the reduction or more efficient use of energy requirements of the utility or its customers including renewable energy technologies. (Horii Direct p. 6:16–22 (*citing* Duff Direct p. 5)). Witness Horii testified that the actual language of Section 58-37-20 defines "demand side activity," not EE/DSM, and while "demand side activities" may include EE/DSM, not all demand side activities are EE/DSM. (Horii Direct p. 7:1–15).

According to Witness Horii, the distinction between Solar PV and EE also is clear from the Commission's recent orders in the NEM generic docket, Docket No. 2019-182-E ("Generic Docket"), and the Duke Energy Solar Choice Dockets. He noted that the Commission's order in the Duke Energy Solar Choice Dockets discusses Solar PV as distinct from other distributed energy resources ("DERs") like EE and battery storage. (Horii Surr. pp. 24–25 (*citing* Huber Rebuttal pp. 6–7 and Order No. 2021-390 at p. 42)). Based on its review of the transcript testimony and proposed orders submitted in the Generic Docket, Witness Horii asserted that Order No. 2021-569 does not support Duke Energy's assertion that Solar PV should be considered EE. (Horii Surr. p. 2:2–8). He further stated that, while Order No. 2021-569 does compare EE and Solar PV, the clear purpose of those comparisons is to establish that the evaluation and analysis methods used to evaluate EE should also be used to evaluate customer-generation. (Horii Surr. pp. 2:9–3:4 (*citing* Order No. 2021-569 at pp. 5–6, 16, 18–19, 47 and 52); Horii Surr. p. 23; *see also* Morgan Surr. pp. 6:18–7:6). Thus, Witness Horii testified that Order No. 2021-569 does not indicate that Solar

PV is EE, should be considered EE, or should be given the same shareholder and net lost revenue treatment as EE. (Horii Surr. p. 23).

Witness Horii also testified that the Commission should reject the analogy that the Companies draw between a solar domestic hot water system (“DHW”) and Solar PV. While a solar DHW system uses the sun, he stated that it does so in order to reduce the amount of natural gas or electricity that a customer’s water heater must consume to heat the water to the customer’s desired temperature. (Horii Direct pp. 9:7–10:2). He further noted that EE focuses on the energy used by the customer rather than whether that energy is purchased from the utility. (*See* Horii Direct p. 9:18–19). In this regard, he pointed out that, while EE eliminates energy waste, by reducing the amount of energy consumed but not converted into the intended useful product, proposing to treat harnessing the sun solar energy as elimination of *energy* waste is a radical and flawed concept. (*See* Horii Surr. p. 8:1–13).

Similarly, Witness Horii testified that Duke Energy’s Topping Cycle Combined Heat and Power (“CHP”) program is “not remotely similar” to Solar PV. (Horii Surr. p. 6:8–13). In assessing gray areas between mere generation and genuine EE/DSM, the key is how and whether the generating unit is integrated with other devices or aspects of an EE/DSM program to create or not create genuine synergies. (Tr. p. 536). He also testified that CHP captures waste heat from the electrical generation process and converts it into useful thermal energy, thereby reducing the need to burn fossil fuel and increasing the overall efficiency of the generation system. (Horii Surr. p. 6:13–20; Tr. 512:5–18). Thus, the key aspect of CHP that makes it reasonable to include as part of an EE program is the use of the waste exhaust heat to increase the overall efficiency of the total heat and power system. By comparison, Solar PV does not increase the efficiency of energy usage but displaces energy otherwise purchased from the Companies. (Horii Surr. p. 7:1–12). Nothing

about Solar PV improves the efficacy of the Winter BYOT program or the efficiency of household devices. (*See* Tr. pp. 536, 541, 543, 489).

According to Witness Horii, the Companies’ proposal to redefine EE would contradict long standing, industry-wide understanding of what constitutes EE to the detriment of all South Carolina utility customers.” (Horii Direct p. 10:9–13; *see also* Horii Surr. p. 13). Witness Horii discussed the harms, including distorting EE statistics, that customers would experience as a result of the Companies’ proposal. In particular, he noted that the Programs would increase costs through the utility incentive component of EE programs, increase the cost shift from solar to non-solar customers, and open the door to forms of generation that are more costly than utility generation also being classified as EE. (Horii Direct p. 10:14–11:4). Witness Horii expressed particular concern that re-framing EE to focus solely on reducing consumption from the utility grid and eliminating the “requirement that a device actually improve efficiency in order to be classified as ‘energy efficiency’” could lead to particularly non-meritorious future “EE” proposals becoming acceptable under Commission precedent. (*See* Horii Direct p. 12:15–13:7).

Witness Horii also disputed Witness Huber’s assertion that there are “specific” advantages from allowing Solar Choice customers to participate in the Program. (Horii Surr. p. 24). He stated that the specific advantages of customer response to time of use (“TOU”) pricing and the Winter BYOT program are not directly related to Solar PV, other than the current requirement that proposed Program participants are subject to TOU pricing and the Winter BYOT program. (Horii Surr. p. 24). He further testified that, if there are benefits to pairing customer-generators on TOU rates and Winter BYOT, the Companies have not attempted to quantify those benefits or explain why the Program is a cost-effective way to obtain those benefits. (Horii Surr. p. 24–25). Witness Horii also stated that unlike Solar PV and storage, there is no clear synergy of bundling Solar PV

and Winter BYOT because nothing about an additional Solar PV incentive helps the Winter BYOT program. (Tr. pp. 489–90; *see also* Tr. pp. 498–99).

2. Duke Energy's Position

Duke Energy Witness Duff disagreed with ORS's position and asserted that the Program is an EE program because "the Program allows customers to reduce their energy consumption from the grid" and would reduce the energy requirements of the utility. (Duff Direct p. 3:16–17; Duff Rebuttal p. 22:6–8). Thus, he opined the Programs satisfied the requirements of S.C. Code Ann. § 58-37-20. (Duff Direct p. 4:5–9). Witness Duff also testified that the Companies' focus "on reducing grid energy usage is ... supported by the Commission-approved cost-effectiveness test – UCT – which ... analysis is exclusively focused on reductions in grid energy usage." (Duff Rebuttal p. 5:14–20). He also suggested this perspective is supported by the Commission's recent directive in the Generic Docket that behind-the-meter self-consumption by customer-generators should "be treated as energy efficiency or demand side resources." In addition, he noted that Section 58-37-20 includes "energy supply ... technologies" in its list of demand-side measures. (Duff Rebuttal p. 5:20–22 (*citing* Order No. 2021-569 at p. 52)). And because there are now mandatory TOU rates for customer-generators, coupled with the new Solar Choice rates and the Winter BYOT program, Witness Duff stated the Programs would result in EE under the "new paradigm" of the system perspective of Order No. 2021-569. (Duff Rebuttal p. 6:22–7:8; *see also* Ford Rebuttal p. 7:6–9 (*citing* Order No. 2021-569 at pp. 9–10)).

Additionally, he testified that Section 58-37-20 "casts a very wide net" that allows the Commission to approve programs implementing "energy supply and end-use technologies." (Duff Rebuttal pp. 5–6 (*citing* S.C. Code Ann. § 58-37-20). In this regard, he stated that the Programs would reduce grid energy usage through Solar PV and include a demand-response component

through Winter BYOT, and, therefore, fit “under the broader umbrella of demand-side programs” that the Commission can authorize under Section 58-37-20. (*See* Duff Rebuttal p. 6:11–25).

Although solar PV has not previously been part of an approved EE program in South Carolina, he further opined that the proposed Programs are consistent with the treatment of other “non-traditional” measures like Topping Cycle CHP. (Duff Rebuttal p. 22:4–6). He also testified that the Commission has approved a Solar PV program as an EE/DSM program based on its approval of a DHW pilot in Order No. 2009-374. (Duff Direct p. 5:17–6:11). Witness Duff therefore disagreed with Witness Horii that classifying Solar PV as EE would distort the magnitude of EE goals and achievements because the Program is cost-effective, even if it is not traditional EE. (Duff Rebuttal p. 10:3–11.)

Witness Huber elaborated on Duke Energy’s position that Solar PV can serve as an EE measure based on the Commission’s findings in the Generic Docket and the Duke Energy Solar Choice Dockets. (Huber Rebuttal p. 3:21–22). He testified that, in the Generic Docket, the Commission expressly ordered that, when evaluating consumption of behind-the-meter solar energy, consumption “shall be treated as energy efficiency or demand-side management resources. (Huber Rebuttal p. 6:10–13 (*citing* Order No. 2021-569 at p. 52)). And Witness Huber stated that, in the Duke Energy Solar Choice Dockets, the Commission determined the Solar Choice Tariffs “establish[ed] a platform for customers to adopt DERs in the future, including energy efficiency measures[.]” (Huber Rebuttal p. 6 (*citing* Order No. 2021-390 at p. 42)). On this basis, he opined that solar may function as an EE measure and that the Solar Choice Tariffs should be used to take advantage of this flexibility. (*See* Huber Rebuttal p. 7:4–6). By using the rate designs of the Solar Choice tariffs in conjunction with Winter BYOT, he also suggested that the Programs would reduce consumption from the grid and optimize customer consumption to reduce peak demand and

thereby benefitting all customers. (Huber Rebuttal p. 7:12–20). The Program also could raise the profile of BYOT. (Tr. p. 718).

### 3. Clean Energy Intervenor’s Position

According to Witness Moore, the Programs meet the purposes and definitions of an energy reduction or efficiency program. (Moore Direct p. 8:8–9). Witness Moore argued that South Carolina law broadly authorizes programs for the “reduction or more efficient use of energy ... including customer conservation and efficiency ... and renewable energy technologies.” (Moore Surr. p. 2:13–19 (*citing* S.C. Code Ann. § 58-37-20)). Therefore, he asserted that these potential customer activities can reduce the amount of energy provided and fuel used by the utility system, which explains why DHW and CHP programs are consistent with S.C. Code Ann. § 58-37-20. (Moore Surr. pp. 5:19–6:2).

He further testified that behind the meter consumption of on-site rooftop solar electricity is equivalent to EE from the perspective of the grid, and this conclusion is consistent with the Commission’s findings in the Generic Docket for valuing distributed energy resources. (Moore Direct p. 4:10–12). Witness Moore stated that the Programs would incentivize the reduction of utility load caused by the portion of customer-produced energy that occurs behind the meter, thereby reducing the primary energy consumed by the power plants to meet the needs of ratepayers. (Moore Direct p. 4). He further testified that customer-based EE and customer-based renewable generation provide similar benefits to the utility system and that those benefits can be enhanced if integrated. (Moore Direct p. 3:4–8).

According to Witness Moore, the Programs also are aimed at increasing load reduction by self-consumption and not at the portion of solar production that flows onto the grid. (Moore Direct p. 4:13–17). He asserted that the self-consumed portion of solar production further produces

system efficiencies, reducing system load and avoiding line losses, like other EE measures. (Moore Direct p. 6:17–7:4; *see also* Moore Direct p. 5:16–6:2). Thus, he opined that, by combining the Solar Choice TOU rate with the Programs, the Programs encourage the most critical sub-set of solar customers (all-electric customers) to modify their energy consumption via a bundle of “carrots and sticks.” (Moore Direct pp. 7:15–8:5).

#### 4. Commission Analysis and Conclusion

Based on our careful review of the evidence of record, the testimony of witnesses at the hearing, and the arguments of the parties, the Commission concludes that Duke Energy has not met its burden of proof to show that the proposed Solar as EE Program should be considered EE.

We are mindful that the words of a statute must generally be accorded the meaning they had at the time the text was adopted. *In re Hospital Pricing Litig.*, 377 S.C. 48, 54, 659 S.E.2d 131, 134 (2008) (“The history of the period in which the statute was passed may be considered in interpreting the statute.”); *Stardancer Casino, Inc. v. Stewart*, 347 S.C. 377, 385, 556 S.E.2d 357, 361 (2001) (“The intent of the legislature is determined in light of the overall climate in which the legislation was amended.”). It is clear from the record that the Companies’ proposal represents a major shift away from industry-standard, long-accepted understandings of EE. For decades, “energy efficiency” has been understood in terms of end-use efficiency and that the industry has never regarded Solar PV as an EE measure. (*E.g.*, Tr. p. 537:7–12). While we believe that the broad language of Section 58-37-20 provides a level of flexibility in assessing whether a particular proposal meets the definition of “demand-side activity,” it is clear to us that at the time Section 58-37-20 was adopted, the General Assembly did not contemplate Solar PV as being an “energy efficient technolog[y].” *See also* S.C. Code Ann. § 58-37-10(1) (““Demand-side activity” means a program conducted or proposed ... for the reduction or more efficient use of energy requirements

of the producer's, supplier's, or distributor's customers, including, but not limited to, conservation and energy efficiency, load management, cogeneration, and renewable energy technologies.”). (*See also* Tr. p. 548).

Importantly, the Companies have failed to explain how the Programs would create genuine synergies between Solar PV and Winter BYOT. To the extent there are benefits, the Companies have not shown that a \$3,500 incentive to adopt Solar PV is a cost-effective, let alone optimal, means of driving increased adoption of Winter BYOT. (Horii Surr. p. 24–25; Tr. p. 489–90). While there may be complementarity between Solar PV and Winter BYOT in the specific sense that the measures address different seasonal system peaks and help introduce customers to new rate designs (*see, e.g.*, Tr. pp. 736–37), Solar PV and Winter BYOT would work essentially in parallel under the Program; each contributes its own unique benefits, but the Companies’ have not shown by a preponderance of the evidence that Solar PV and Winter BYOT would work together to provide *new* EE benefits that are greater than the sum of the benefits of the two measures. (*See, e.g.*, Tr. pp. 489, 541, 543). This is an important distinction between the Program and other approved EE/DSM programs, including the DHW and CHP programs.

It also would be a radical departure from the existing EE/DSM framework and well-recognized industry understanding to approve an EE program that does not provide any EE-specific emergent benefits. (*See, e.g.*, Tr. p. 537). Defining EE solely in terms of utility reductions, regardless of the source and without requiring any efficiency improvements, could open the door to incentives for *any* program that merely shift load off the utility grid. (*See* Tr. pp. 537–39, 540–41). We therefore agree with the concerns expressed by Witness Horii that Duke Energy’s proposed redefinition of EE is a major change with potentially far-reaching implications for customers. (*See* Tr. pp. 542, 551-52). And while we agree that, under Act No. 62, this Commission,

utilities, and stakeholders must continue to seek opportunities for renewables, rate design, and EE *to work together*, based on the record before us, the Companies have not shown that the Programs are more than a mere pairing of Solar PV and Winter BYOT. While the Commission is optimistic about the future potentials, at this point they have not been demonstrated by a preponderance of the evidence as likely to be realized through the Program.

Accordingly, we find it appropriate to exercise caution and discretion before affirmatively finding that a proposed EE/DSM program treating Solar PV as EE is consistent with South Carolina law. Based on the record before us, we do not believe the Companies' have shown by a preponderance of the evidence that Solar PV operates as EE within the context of the Program. We therefore limit our holding to the Programs as proposed in this proceeding and based on the record before us.

We also take this opportunity to make clear that Order No. 2021-569 compares EE and Solar PV for the purpose of establishing that the methods used to evaluate EE should also be used to evaluate customer-generation. (*See* Horii Surr. pp. 2:9–3:4 (*citing* Order No. 2021-569 at pp. 5–6, 16, 18–19, 47 and 52); *see also* Morgan Surr. p. 6:18–7:6). Although self-consumed generation and EE/DSM measures are decrements to system load, this does not by default establish that Solar PV can be accurately characterized as an EE/DSM measure. (Morgan Surr. p. 7:6–8). Instead, it depends on how the Solar PV is integrated with other measures. (*See* Tr. p. 536). From this vantage point, we also reject Duke Energy's argument that its approved CHP program shows that generation alone can serve as EE. We agree with Witness Horii that the key aspect of the CHP that makes it reasonable to include as part of an EE program is the use of the waste exhaust heat to increase the overall efficiency of the total heat and power system. (Horii Surr. 6:13–20; Tr. 512:5–18).

We also believe it is notable that customers are able to opt-out of the one aspect of the Program that is clearly EE/DSM – the Winter BYOT program – without penalty, subject only to paying back the Incentive gradually over time at the rate of \$200 per year, up to the amount of the Incentive. This fact underscores to us the absence of a necessary, meaningful connection between Solar PV and the Winter BYOT program, and supports Witness Horii’s view that the Programs are a “tying” arrangement. (*See* Tr. p. 543). However, more must be shown to demonstrate that the generation resource improves end-use efficiency and/or shifts load to reduce peak demand. (*See also* Tr. p. 940:15–16). A showing of grid energy reduction alone is insufficient to establish that a proposed measure is providing EE. (*See, e.g.*, Tr. p. 537; *see also* Tr. p. 940:15–16)

This conclusion is bolstered by this Commission’s consideration of the cost-ineffectiveness of the proposed Programs discussed further below. (*See, e.g.*, Tr. p. 550:24–551:1). We are concerned that Duke Energy’s proposed definition of EE, which focuses exclusively on reductions to grid electricity usage, would effectively cede to Duke Energy a right to a certain level of grid consumption. Here, Solar PV uptake may reduce Duke Energy’s share of the market for electrical generation. Duke Energy has proposed to offer an incentive to potential Solar PV customer-generators, and if the prospective generator accepts the incentive, Duke Energy would be permitted to continue to earn a level of profit through recovery of net lost revenues and program performance incentives similar to what it would have earned if the customer-generator had never become a customer-generator and Duke Energy was responsible for generating the electricity to serve the load met by the customer-generator.

However, the best evidence in this case suggests that almost four out of five future customer-generators would have become customer-generators *without* the incentive.<sup>13</sup> That means that, in the absence of the incentive, customers would *not* have to pay net lost revenues and program performance incentives for the self-consumed generation of those customer-generators, and customers would receive *no additional benefits* from that self-consumed generation, despite having to pay for the incentive, program costs, and potentially net lost revenues and program performance incentives. As regulators, we are mindful that part of our responsibility is to simulate the effects of competition in the regulatory monopoly setting. Based on the weight of the evidence before us, we conclude that approving the Program would be inconsistent with this responsibility.

### **C. Cost-Effectiveness – UCT as Determinative Test**

#### **1. ORS's Position**

ORS Witness Horii presented ORS's analysis of the cost-effectiveness of the Programs and the cost-effectiveness test results presented by the Companies. According to Witness Horii, the Programs fail the two most utilized cost-effectiveness tests the UCT and TRC. (Tr. 459.31:10–14; see also 459.31:5–8). Witness Horii recommended that the Commission give significant weight to the TRC test results because the TRC is the only cost-effectiveness test that considers the impact on all of Duke Energy's customers of the proposed Program. (Tr. 458). Witness Horii further stated that the Programs fail the UCT benefit-to-cost test based on Duke Energy's own data showing that approximately 79% of participants would be "free riders," which are those participants who would

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<sup>13</sup> The free-ridership figures also lend credence to and underscore the importance of Witness Horii's testimony regarding the potential harms to customers of the Program, including distorting EE statistics, increasing costs through the utility incentive component of EE programs, increasing the cost shift from solar to non-solar customers, and opening the door to forms of generation that are more costly than utility generation also being classified as EE. (Horii Direct p. 10:14–11:4).

have installed Solar PV even if the incentive proposed in the Programs did not exist. (Horii Direct pp. 13–14, 24). After correcting Duke Energy’s free-ridership assumption from 10% to 79%, Witness Horii opined that the remaining 21% of customers that would participate in the Programs solely because of the incentives leads the Programs to fail the UCT. (Tr. 458, 463).

In response to Witness Duff’s testimony that the UCT test should be the primary test in determining the effectiveness of an energy efficiency program, Witness Horii testified that the Commission should consider cost-effectiveness under multiple perspectives, and recommended that the Commission consider both the UCT and TRC results. (Horii Direct p.13:9–18). Specifically, Witness Horii stated that considering the UCT alone is inadequate to evaluate whether the Programs are in the best interest of customers. He explained that, although the UCT is a valid cost test, it evaluates cost-effectiveness narrowly from the perspective of the utility, ignoring the costs incurred by participants and non-participants. (Horii Direct pp. 13–14). He also recognized that the Commission has the discretion to and should consider the benefits of multiple cost tests for the proposed Programs, as contemplated by the Commission in Order No. 2021-569. (Horii Surr. p. 10 (*citing* Order No. 2021-569 at p. 51)).

Witness Horii also addressed Witness Duff’s criticisms of the TRC in three ways. (*See* Horii Surr. pp. 10–12 (*citing* Duff Rebuttal p. 12)). First, Witness Horii responded to the argument that using the UCT and not TRC would mitigate the negative impact that improvements in EE codes have on cost-effectiveness testing results. If improvements in EE codes make it harder for programs to pass the TRC, rather than jettison the test, the cost-effectiveness of potentially outdated EE programs should be re-examined. (Horii Surr. p. 11). Second, the TRC is less subject to improper manipulation because it is “driven by the fundamental costs of the program” rather than utility program design decisions on the amount of the incentive. (Horii Surr. pp. 11–12).

Third, while Witness Horii recognized Witness Duff correctly recognized the UCT reflects whether the EE benefits of a program to the utility system are greater than the costs, the UCT does not assess the “total costs that will be borne by the Companies’ customers as a whole,” while the TRC does. (Horii Surr. pp. 11, 12; *see also* Tr. p. 495:13–17).

According to Witness Horii, the most fundamental difference between the UCT and TRC is the costs that are included in each respective test. (Horii Direct p. 15:6–7). He stated that the UCT considers the program, administrative costs, and utility incentive costs, while the TRC considers the actual installed cost of the Solar PV and the applicable administrative costs. (Horii Direct p. 15:7–9). Given these differences, he stated that, while the UCT results may facially suggest that a program is cost-effective, the TRC could reveal that the overall costs substantially outweigh the benefits, rendering the program unreasonable to adopt. (Horii Direct p. 15:6–18). According to Witness Horii, it also is typically easier for a program to pass the UCT than the TRC because the utility incentive cost, used for the UCT, typically is only a fraction of the incremental cost of the program, which is used for the TRC. (Horii Direct p. 16:4–11).

In this regard, Witness Horii recommended that the Commission require programs to pass the TRC stating that, of the four standard cost tests, only the TRC evaluates the impact of the program on *all* of the utility’s customers. (Horii Direct p. 16:12–16). By contrast, Witness Horii testified that the UCT only looks at the benefits and cost impacts for the utility, ignoring costs paid by any other party, while the Participant Cost Test (“PCT”) and Ratepayer Impact Measure Test (“RIM”) focus only on participants and non-participants, respectively. (Horii Direct p. 16:14–20). Witness Horii opined that, while the Commission should consider UCT results, these results are not sufficient by themselves to present a full picture of whether a program will provide a net benefit to customers. (Horii Direct p. 17:9–18:3; *see also* Horii Direct p. 16:21–17:8).

2. Duke Energy's Position

The Companies projected the Programs to be cost-effective under the UCT, and asserted that the UCT is the determinative, Commission-approved screening for determining whether a proposed program is cost-effective. (Duff Rebuttal p. 22:8–10). Accordingly, Duke Energy asserted that the Programs must be evaluated under the UCT. (Duff Direct p. 7).

In support of this position, Witness Duff emphasized that the settlement agreements approved under Commission Order Nos. 2021-32 and 2021-33 (“Mechanism Settlement Agreements”) established that the UCT is the determinative cost-effectiveness test for EE/DSM programs. (Duff Rebuttal pp. 3:17–4:4, 10:12; *see also* Huber Rebuttal p. 8:21). Witness Duff highlighted portions of the Mechanism Settlement Agreements discussing how the UCT will be applied to review proposed programs, noted that ORS has relied on the UCT and not TRC in recent proposed-program reviews, and asserted that ORS was effectively seeking to “unwind” the Mechanism Settlement Agreements. (Duff Rebuttal pp. 10:12–12:2).

Witness Duff also testified that the UCT is the most useful cost-effectiveness test for evaluating the Programs “because it considers the program from the perspective of a utility investment on behalf of customers in a demand-side resource compared to the costs of a supply-side investment[.]” (Duff Rebuttal p. 4:1–4). By contrast, Witness Huber suggested “the TRC provides a limited lens and treats private investment from customers as a cost.” (Huber Rebuttal p. 8:15). Witness Duff did not disagree with Witness Horii that the TRC is the only one of the standard four cost tests that evaluates the impact of an EE/DSM program on all customers “if you consider customers as a whole.” But he emphasized that a TRC ratio above one does not mean that every single customer will realize a net benefit. (Duff Rebuttal pp. 12:24–13:14). Witness Ford

further testified that the Companies' projected savings from the Program mean all customers would save money through the Programs' implementation. (Ford Rebuttal p. 8:13–14).

3. Clean Energy Intervenors' Position

Witness Moore also recommended that the Commission should rely on the UCT as the determinative cost-effectiveness test in these dockets and that “the UCT is the right approach for this kind of case.” (Moore Surr. pp. 1:19–24, 9:2). Although the TRC has been the primary test for most states, he further noted there has been a recent trend towards the UCT, which he suggests is appropriate for assessing “whether ratepayers are getting a good deal in exchange for the incentives [] they are funding[.]” (Moore Surr. p. 9:3–14). In contrast, he stated the TRC does not evaluate the cost of utility incentives paid by non-participants, treating those incentives as a transfer from one set of customers to another rather than an increase in overall cost. Additionally, while the TRC was intended to provide “a type of global assessment of a demand-side resource's costs and benefits to ratepayers as a whole,” Witness Moore stated it often fails to include all of the benefits to participating ratepayers because many of these benefits are difficult to quantify. (Moore Surr. p. 9:4–10:4).

4. Commission Analysis and Conclusion

While we believe that Commission Order Nos. 2021-32 and 2021-33 are clear on their face, we take this opportunity to clarify that Order Nos. 2021-32 and 2021-33 do not establish the UCT as the sole and determinative cost-effectiveness test by which to evaluate a proposed EE/DSM program. It is important for the Commission to fully receive all relevant information in determining whether a proposed program is cost effective, and each of the cost-benefit tests illustrate different, relevant perspectives and information and are appropriate for our consideration. *See* Order No. 2021-569 at 51. Indeed, while Duke Energy initially strongly asserted that the UCT

is the determinative test, in response to Commissioner questioning Witness Duff changed his position and conceded that the UCT is the primary but not exclusive test. (Tr. p. 616). Further, it is clear to us given the novelty and policy implications of the proposed Programs that other cost-effectiveness test results should also be considered in order to develop a comprehensive picture of the likely effect of the Programs on customers as a whole.

#### **D. Cost Effectiveness – Free Ridership Analysis**

##### **1. ORS's Position**

ORS asserted that, for the UCT, the free rider assumption is a critical driver of cost effectiveness, and the Companies' 10% free-ridership assumptions have a dramatic impact on the Programs' UCT results. (Horii Direct pp. 22:1, 29:13–14). As described by Witness Horii, under the UCT, the benefits of a program only include *incremental* benefits directly attributable to the program. Furthermore, he stated the benefits must not include participants who would have taken the same action even if the program did not exist because the utility would have received the same benefits from those customers installing the EE measure with or without the incentives of the program. (Horii Direct p. 22:1–9). In short, he stated that the higher the free ridership percentage, the lower the benefits that are actually attributable to the program and the lower the benefit-cost ratio result under the UCT. (Horii Direct p. 22:8–13).

Witness Horii also noted that free ridership is particularly important because the *costs* accounted for in the UCT are not reduced for free riders, while they are in the TRC. The Companies' assumed 10% free ridership in their UCT calculations, which means that Solar PV installations for all-electric customers would be ten times (10x) higher with the Programs. (Horii Direct p. 23:3–4). Witness Horii stated that such a low free rider value generally is only used for programs that would have almost no market uptake without the incentive program. As noted by

Witness Horii, however, residential Solar PV has been around for decades, so such an assumption is unlikely. (Horii Direct p. 22:16–19). Witness Horii also testified that the Companies’ focus on low solar adoption rates in COVID-influenced 2020 is not the best way to evaluate future uptake, and that overall adoption rates of more than 2% of Duke Energy homeowners, particularly because the visibility of residential Solar PV installations and the level of media and marketing place Solar PV “in another league from little known, untrusted, and obscure EE alternatives with 10% free rider values.” (Horii Surr. pp. 21–22; *see also* Tr. p. 532–33).

Additionally, Witness Horii calculated that the incentive would reduce the simple payback period for Solar Choice Tariff customers from approximately 14.4 years to 11.1 (DEC) and from 16.4 years to 12.6 (DEP). (Horii Direct p. 23:5–18). Witness Horii opined that these reductions would not incite a 10x Solar PV adoption rate. (Horii Direct p. 23:5–18).

Witness Horii also conducted his own free ridership analysis based on two adoption forecasts provided by Duke Energy: 1) the forecast for the prior full retail NEM tariffs and 2) the forecast for the Solar Choice Metering tariffs. (Horii Direct p. 24; Horii Surr. p. 29; *see also* Tr. pp. 532–34). Witness Horii’s analysis used forecast data for Schedule RS customers, rather than Schedule RE customers, because the behavior of all-electric Schedule RE customers could be influenced by the potential for the \$3,500 incentive under the Program and because Duke Energy was not able to separate its solar adoption forecasts between all-electric and other residential customers. (Horii Surr. p. 20; *see also* Tr. p. 522). Witness Horii also compared the current forecasted adoptions in 2022 for Schedule RS customers of 497 with the number of adoptions forecasted for Schedule RS in 2022 under the prior full retail NEM tariffs of 633. Witness Horii testified that he could confidently use the 633 adoptions because the current tariffs plus the Solar PV as EE incentive and the Full Retain NEM tariffs provide almost the same estimated payback

period for the DEC Schedule RS customers. (Horii Direct pp. 25:3–26:2). Witness Horii further confirmed that the fundamental economics for RS versus RE customers was essentially the same by examining hourly usage data of these classes, which virtually were the same by TOU period. Accordingly, Witness Horii determined the expected bill savings from Solar PV, and therefore Program adoption rates, basically should be the same. (Horii Surr. p. 20). Witness Horii concluded that approximately 79% of solar adoptions would have occurred without the Solar PV as EE incentive. (Horii Direct p. 25:12–26:1).

Witness Horii testified that updating the Companies' UCT and TRC results to correct for free ridership results in the following cost-effectiveness scores:

	DEP	DEC
UCT	.45	.59
TRC	.70	.81

(Horii Direct pp. 27:5–28:3 (Tables 4 & 5)). On this basis, Witness Horii stated the UCT benefit cost results are dramatically reduced from those calculated by the Companies and demonstrates the Programs are “far from cost effective.” (Horii Direct p. 26:6–13).

Witness Horii also responded to criticisms of Witness Huber and Witness Duff of his free-ridership calculations. Witness Huber criticized Witness Horii's reliance on Duke Energy's adoption forecasts based on customer uncertainty given the complexity of the Solar Choice Tariffs. (Horii Surr. p. 29; Huber Rebuttal pp. 9–10). Witness Horii responded that rate complexity likely does not affect the free-rider percentage because it “is based on a regression between simple payback period and historical adoption.” (Horii Surr. p. 29 (*quoting* Huber Rebuttal p. 9); *see also* Tr. p. 526:8–10). While Duke Energy did not attempt to account for the effect of rate complexity

on adoption in its forecasts, Witness Horii stated that complexity may reduce the adoption rates of both forecasts, leaving the ratio between the two, which is the free-rider percentage, unchanged. (Horii Surr. pp. 29–30). Witness Huber also asserted that the up-front incentive would enhance adoptions because it reduces the upfront capital that needs to be financed. (Horii Surr. p. 30 (*citing* Huber Rebuttal pp. 9–11)). However, Witness Horii noted Witness Huber testified a large portion of the market is third-party owned or financed solar, so capital access is not an issue for that portion of the market. And Witness Huber asserted the up-front incentive is an important marketing tool not captured in a payback period calculation, but if it made a substantial difference in adoptions, Witness Horii testified it would have been advocated as a requirement in the Solar Choice Metering tariff. (Horii Surr. pp. 30–31 (*citing* Huber Rebuttal pp. 9–11)).

## 2. Duke Energy's Position

The Companies asserted that their assumed 10% free-ridership percentage is an appropriate initial assumption compared to the allegedly unjustified 79% supported by ORS. Duke Energy also argued that, even if measured free-ridership is higher, the EM&V and the annual rider true-up process will ensure that customers only pay for the measured net impacts. (Duff Rebuttal p. 22).

Duke Energy also disagreed with ORS's free ridership analysis. Witness Huber testified that Witness Horii's conclusion that adoption of Solar PV with the Program incentive will be the same as under the pre-Solar Choice tariffs, while based on the best methodology currently available, is problematic. (Huber Rebuttal p. 9:14–2). He further stated that the new Solar Choice Tariffs rely on more complex rate designs that send better price signals but which, as a result of their increased complexity, may leave potential Solar PV customers uncertain that bill savings will actually materialize. These factors may lead future adoption rates to differ from observed adoption

rates. (Huber Rebuttal p. 9:2–10; *see also* Tr. p. 721). Further, he testified that the up-front Program incentive is expected to drive adoption of Solar PV because it is certain, more valuable from an net present value perspective and reduces the amount of capital to be financed, and because its value as a marketing tool for solar installers is not captured quantitatively. (Huber Rebuttal pp. 10:15–11:10; *see also* p. Tr. 720).

Witness Duff also challenged Witness Horii’s free ridership analysis arguing it is based on adoption rates by Rate RS customers who cannot participate in the Programs. (Duff Rebuttal p. 4:15–17; *see also* Huber Rebuttal p. 10:10–12). Additionally, he stated that, although residential Solar PV has been around for decades, it has “almost no market uptake” because only .23% of Duke Energy’s customers installed Solar PV in 2020, so a 10% free ridership assumption is reasonable. (Duff Rebuttal p. 18:3–23). Without the proposed Programs’ incentive and tax credits, Witness Duff stated “the economics do not support economically rational actors installing solar PV with the new Solar Choice Metering tariffs[.]” (Duff Rebuttal p. 19:10–11). Witness Duff also noted that the free-ridership assumption for DSM programs is typically zero “because customers are required to change their behavior to participate,” so even a zero-free-ridership assumption may be supportable. (Duff Rebuttal 19:14–19; *see also* Tr. p. 652). Further, because the Companies will use EM&V to update realized free-ridership during review for cost recovery purposes, Witness Duff testified that even if free-ridership exceeds the Companies’ assumptions, customers will only pay for measured net energy savings from the Programs. (Duff Rebuttal p. 19:16–20:6).

### 3. Clean Energy Intervenors’ Position

Witness Moore testified that all EE programs must undergo an independent EM&V process to evaluate their actual results once enough data has been collected to evaluate the program.

(Moore Direct pp. 4:18–5:2). He asserted that the EM&V process will true-up any real-world variations from initial Program assumptions such as free-ridership. (Moore Surr. p. 1:19–24).

Witness Moore also emphasized the difference between gross and net energy savings he expected would result from the Programs. (Moore Surr. p. 3:9–11). While gross savings are all of the energy savings caused by every measure implemented under an EE program, Witness Moore testified that net savings are the energy savings actually caused by a program. (Moore Surr. p. 3:12–19). He further stated that net savings determined through EM&V are adjusted downwards for measures that would have been installed even without the program. (Moore Surr. p. 3:19–24). Witness Moore further asserted that the EM&V framework is intended to ensure the utility is not credited for energy savings that would have taken place even without the particular EE program. (Moore Surr. p. 4:14–19). Because actual free-ridership will be determined through EM&V, Witness Moore claimed that customers will not pay for net lost revenues not caused by the Program and that would have happened under Solar Choice alone. (Moore Surr. p. 5:11–13; *see also* Moore p. 7:2–4).

#### 4. Commission Analysis and Conclusion

We conclude that Witness Horii responded fully and persuasively to every criticism Duke Energy offered of his free-ridership calculations. While Witness Duff asserted that Witness Horii's free-ridership calculations were "meaningless" because those calculations were based on RS customers ineligible for the proposed Program, Witness Horii amply explained why he used RS customers for his estimates. Specifically, Witness Horii stated he used the best data Duke Energy had available, and Witness Huber conceded to this point. And Witness Horii confirmed his approach was reasonable by calculating the expected payback periods between Schedule RE and Schedule RS customers. Based on that analysis, Witness Horii determined that the fundamental

economics of Solar PV to members of these respective classes and the likely adoption rates were essentially the same.

Duke Energy also did not substantively and persuasively respond to Witness Horii's assertion that the economics of Solar PV were fundamentally the same between rate Schedule RE and RS customers. Duke Energy offered only analytical criticisms regarding factors that may not have been picked up in Witness Horii's analysis. However, Witness Horii explained that these factors either did not actually affect his analysis (such as Witness Huber's criticism regarding customer uncertainty) or were unsupported by any actual data while at the same time cutting both ways from an analytical perspective in the cost-effectiveness analysis (such as Witness Duff's criticisms regarding financing rates and Witness Huber's criticisms regarding the value of an up-front incentive). Based on the record of this case, we fully agree with Witness Horii that Duke Energy did not derive its own actual free-rider percentage in response to Witness Horii's detailed, analytically rigorous, and data-driven analysis. (*See* Horii Surr. p. 30).

## **E. Cost Effectiveness – Results**

### **1. ORS's Position**

Witness Horii noted that the Companies' own calculations and based on their own cost assumptions show that the Programs do not pass the TRC. (Horii Direct p. 18:4–7; Horii Surr. p. 27). He further stated that, although programs with insufficient TRC results are sometimes adopted – namely where the non-cost-effective program either is integral to a larger EE portfolio that is cost-effective or supportive of a larger social goal like providing savings for low-income households – those exceptions are inapplicable to the Program. (Horii Direct 18:7–13). Witness Horii testified to three additional flaws in the Companies' TRC results based on overestimation of

T&D peak reductions, exclusion of Solar PV integration costs, and significant underestimation of free ridership. (Tr. 459.19; *see also* Tr. p. 506).

In response to Duke Energy’s assertion that the Programs will provide reductions to T&D peaks, Witness Horii stated Duke Energy overestimated the impact Solar PV would have on T&D by relying on the “extremely simplistic assumption” that the T&D reductions of the Program would occur at the same time as the system peak. (Horii Direct p. 19:4–16; Horii Surr. pp. 17–18). He also pointed out that Duke Energy admitted the timing of T&D peaks differ across the system and that T&D capacity is not planned based on peaking at the system level. (Horii Direct p. 19:7–16).

In order to provide a more reasonable estimate of Solar PV output at the time of localized T&D peaks and the T&D peak reduction benefits of Solar PV, Witness Horii analyzed the timing of the T&D peaks at the circuit level and determined a weighted average Solar PV output across the DEC and DEP systems based on Duke Energy’s estimates of residential energy usage on each substation. (Horii Direct pp. 19–20; Horii Surr. p. 17). Witness Horii concluded that the expected T&D peak reductions per Solar PV installation were approximately 30% less than Duke Energy assumed, which would further reduce the Companies’ TRC results. (Horii Direct pp. 19–20; Horii Surr. p. 17). However, Witness Horii asserted that, even if the Companies neither previously assessed the benefits of T&D peak reductions in this way nor been ordered to do so by the Commission, this approach is more accurate. (*See* Horii Surr. pp. 18–19).

With respect to integration costs resulting from the need to accommodate the intermittent nature of solar, Witness Horii testified that these costs reduce the benefits of solar generation. Although Commission Order No. 2021-569 directs that integration costs only apply to exports, he noted that the Commission recognized the reality of these costs in adopting the Solar Integration

Services Charge (“SISC”) in DEC and DEP’s 2019 avoided cost proceedings for utility-scale solar. (Horii Direct p. 21:1–15; Horii Surr. pp. 5–6). He further stated that the impact of solar output uncertainty and volatility to utility costs for residential Solar PV customer-generators has “fundamentally the same” effect from a system-operator perspective; therefore, including integration costs in this context provides a more accurate representation of the costs and benefits of Solar PV. (Horii Direct p. 21; Horii Surr. pp. 5–6).

Witness Horii also calculated how Duke Energy’s unreasonably low free ridership assumptions affected the TRC results. However, he primarily discussed free ridership in connection with his analysis of Duke Energy’s UCT results. (*See generally* Horii Direct pp. 21:21–28:3).

Incorporating Witness Horii’s analysis related to T&D peak, SISC, and free ridership reduced the TRC scores even further below Duke Energy’s results (.86 for DEC and .74 for DEP), and resulted in TRC scores of .53 for DEC and .42 for DEP. (*See* Horii Direct p. 29:1–6 (Table 6); *see also* Horii Direct pp. 18:14–18, 19:1–3). On cross-examination, Witness Horii acknowledged that Duke did not include non-energy benefits in its TRC calculations, but stated that whether those non-energy benefits would improve the TRC scores depended on the particular benefits at issue. (Tr. pp. 506–507).

Witness Horii also responded to Witness Duff’s rebuttal testimony cost-effectiveness test results that were updated to include Winter BYOT. (Horii Surr. pp. 14–15). First, he stated that if the Solar PV as EE Program is only cost-effective when the BYOT benefits are included, it begs the question of whether it is in the best interest of customers to approve Solar PV that is not cost-effective on its own. (Horii Surr. p. 14; *see also* Tr. pp. 487–88, 498–99). He also argued that, although the Programs would drive higher Winter BYOT participation, higher participation could

be obtained through other, perhaps less-expensive, means. He further noted that the Companies have not attempted to quantify the benefits of pairing TOU rates with Winter BYOT or to explain why the Programs are cost-effective was to obtain those benefits. (Horii Surr. pp. 14, 24–25; *see also* Tr. p. 489:6–19). Second, he testified that the fact that Duke Energy presents a combined TRC of 1.0 for DEC and DEP still does not support approval because, as previously discussed, Duke Energy’s cost-effectiveness results are overstated, and the Programs should be evaluated separately for their cost-effectiveness to each utility given that DEC and DEP have different avoided cost rates. (Horii Surr. p. 15).

Witness Horii responded to Witness Huber’s criticism that ORS’s TRC results ignore the large number of customers who finance their system, artificially lowering the TRC results. (Horii Surr. p. 27). According to Witness Horii, ORS’s cost inputs were “the exact same TRC cost information that the Companies used,” and Duke Energy did not present any factual support for its assertions. (Horii Surr. pp. 27–28). He also said there are reasonable arguments that third-party financing *increases* the costs of Solar PV – for instance, that third-party solar leasing companies are in a position to charge a premium to allow customers to obtain Solar PV with little or no upfront cost – which would make the proposed Programs *less* cost-effective under the TRC. (Horii Surr. p. 28).

ORS Witness Morgan testified that the proposed Programs create significant additional customer costs, including costs that will be imposed on non-solar generating residential customers. (Morgan Direct p. 3:18–20). If approved, the Companies would be eligible to recover program costs and additional solar PV customer-generator incentives from the Programs, net lost revenues for 36 months, and a program performance incentive of 10.6%. (Morgan Rebuttal p. 6:7–12). The Programs will provide the Companies’ shareholders with additional net lost revenue and program

performance incentives, paid for exclusively by Duke Energy's South Carolina residential customers. (Morgan Direct p. 12:13–15; *see also* Horii Surr. p. 5:6–13). Moreover, he stated this is not a limited program like the solar DHW pilot, but a large-scale program that could result in substantial costs for non-participants – as well as increased shareholder earnings – if adopted. (Horii Direct p. 30:5–7). The Programs also would increase costs to DEC and DEP customers by creating unnecessary additional program costs, additional incentives for shareholders, and full recovery of lost revenues despite the fact that the Programs do not pass the Companies' cost-effectiveness tests. (Horii Direct p. 12:1–14). Approving the Programs also would create future risk by establishing a precedent that could be used to support non-EE programs being classified as EE, and accordingly becoming eligible for EE incentives, adding further cost burdens to customers in the future. (Horii Direct p. 12:1–14; *see also* Tr. pp. 501–03). And because the Programs fail the TRC using Duke's own numbers, it is not going to reduce total energy in South Carolina or ever deliver a long-term net benefit. (*See* Tr. p. 545).

## 2. Duke Energy's Position

As discussed previously, the Companies projected the Programs to be cost-effective under the UCT, and asserted that the UCT is the determinative, Commission-approved screening for determining whether a proposed program is cost-effective. (Duff Rebuttal p. 22:8–10). And although there is no requirement for programs to pass any cost-effectiveness test but the UCT, Duke Energy asserted the Programs pass or come very close to passing the other three tests, including the TRC. (Duff Rebuttal p. 22:11–14). As the basis of this conclusion, the Companies' assumed 10% free-ridership percentage is an appropriated initial assumption compared to the unjustified 79% supported by the ORS. Duke Energy also argued that, even if measured free-

ridership is higher, EM&V and the annual rider true-up process will ensure that customers only pay for the measured net impacts. (Duff Rebuttal p. 22).

In rebuttal, Witness Duff discussed other inputs to the cost-effectiveness tests and Witness Horii's criticisms of other inputs. (*See generally* Duff Rebuttal pp. 12–16). Witness Duff presented updated, higher cost-effectiveness test results in rebuttal based on inclusion the costs and benefits of Winter BYOT participation. (Duff Rebuttal pp. 13:15–14:10). Witness Duff also testified that the Companies assumed that all customer out-of-pocket costs for the solar investment would be incurred in the year of installation, which could have inaccurately reduced the Companies' TRC results assuming "customer costs are spread out via a lease or loan with a financing rate lower than the Companies' discount rate[.]" (Duff Rebuttal p. 14:11–19). Witness Huber testified a large portion of the Solar PV market is third-party owned, *i.e.* financed, solar, including 31.5% in South Carolina. (Huber Rebuttal p. 9:3–4). The availability of a leasing option where the lessor can take advantage of benefits such as business or tax advantages could decrease the net present value of the investment costs to the lessee, which means the TRC results for the Program are artificially low. (Huber Rebuttal p. 9:1–13). Witness Duff further disputed that the Companies overestimated the T&D peak reduction provided by Solar PV because the system-average methodology that the Companies applied is the same methodology used in the determination of avoided costs and avoided T&D costs for EE/DSM programs. (Duff Rebuttal p. 15:1–23). Witness Duff also testified that solar integration costs should not be included in evaluating the Programs' cost-effectiveness because the integration costs associated with Solar PV need more study but are likely reflected in the time varying rates proposed as part of the Solar Choice Metering tariffs. (Duff Rebuttal p. 16:1–15).

Witness Duff also testified that ORS Witnesses Horii and Morgan unduly or improperly focus on the costs and shareholder incentives of the Programs and that the Companies should seek to incentivize customers to adopt all cost-effective EE/DSM measures. (Duff Rebuttal pp. 4:5–10, 4:16–5:3). He argued that, under S.C. Code Ann. § 58-37-20, incentives and cost recovery are required for approved programs, EE/DSM programs should seek to maximize the net benefits as defined by the UCT, and the Companies retain only 10.6% of those benefits as a performance incentive. (Duff Rebuttal pp. 16:16–17:11). For cost-effective programs, notwithstanding the cost of the program, he stated that the utility avoids an even greater level of costs overall. (Duff Rebuttal p. 20:11–20). With the current rate design and compensation mechanism for Solar PV customers ending, he testified the Programs provide a separate and new value stream for customers who want to invest in Solar PV. (Duff Rebuttal p.21:17–23).

### 3. Clean Energy Intervenor's Position

As discussed above, Witness Moore testified that all EE programs must undergo an independent EM&V process to evaluate their actual results once enough data has been collected to evaluate the program. (Moore Direct pp. 4:18–5:2). He stated that this process will adjust gross savings downward for free-ridership, as well as account for spillover, which is where a program inspires customers to install EE measures beyond the program, increasing the net impact of the program. (Moore Surr. p. 4:1–13). Because actual free-ridership will be determined through EM&V, Witness Moore testified that customers will not pay for net lost revenues not caused by the Programs and that would have happened under Solar Choice alone. (Moore Surr. p. 5:11–13; *see also* Moore p. 7:2–4). He also stated that EM&V is not available for resources like central-station power plants, and allows for continuous cost-effectiveness evaluation, flexibility, and elimination of ineffective EE/DSM programs. (Moore Direct p. 5:2–6). Witness Moore further

testified that approval of the Programs would support continuing improvements in coordination between EE and distributed renewable generation and between DSM and rate schedules that will result in customers' best interest. (Moore Direct p. 8:10–14; *see also* Moore Direct p. 3:4–20).

Regarding the Companies' TRC results, Witness Moore testified that residential Solar PV specifically may have benefits – to the environment, property values, or cost-benefit proposition of electric vehicles – that are significant, but not typically captured in the TRC. (Moore Surr. p. 10:11–15). The Companies' TRC results for the Programs are close to 1 “without counting these customer benefits,” and are on average equal to 1 between DEC and DEP without these benefits if the Winter BYOT is included. (Moore Surr. pp. 10:11–11:6 (*citing* Duff Rebuttal p. 14)).

Witness Moore also testified that the existing approved methodology for assessing avoided T&D used for other EE/DSM programs should be used for the Programs. (Moore Surr. p. 2:1–3). According to Witness Moore, Witness Horii's application of a different circuit-level T&D cost-allocation methodology to residential Solar PV from that approved by this Commission in the Solar Choice Dockets would run afoul of Act No. 62's directive to address all renewable energy issues in a fair and balanced manner. (Moore Surr. pp. 11:7–12:8).

Witness Moore agreed with Duke Energy Witness Duff that ORS Witness Morgan unduly focused on the costs of the Programs. (Moore Surr. p. 7:12–16). Witness Moore testified that the net lost revenues paid out under an EE/DSM program are not an additional cost to customers, but rather the same costs that would be collected in utility revenues from customers if the program did not exist. (Moore Surr. p. 7:17–8:6). A cost-effective EE/DSM program will tend to lower overall rates over time, including through a near-immediate reduction in the fuel rider. (Moore Surr. p. 8:7–15).

4. Commission Analysis and Conclusion

After careful review and consideration, we conclude that the preponderance of the evidence shows that the Programs will not be cost-effective. The most important factual basis for this conclusion is Duke Energy's failure to support its cost-effectiveness assumptions. Duke Energy had the burden of proof to show that its free-ridership assumptions were the most reasonable and appropriate. But Duke Energy made no attempt to respond to ORS's detailed reasoning and analysis presented by Witness Horii calculations by offering counter-calculations and fell back on criticisms that, by and large, it failed to substantiate its calculations whatsoever. "Essentially, Duke Energy took a gamble by pursuing an all-or nothing stance" with regards to its free-ridership assumptions, leaving this Commission with only Witness Horii's numbers on which to base its decision. *See Duke Energy v. S.C. Office of Regulatory Staff*, \_\_ S.E.2d \_\_, \_\_, 2021 WL 4979272 at \*12, Opinion No. 28066 at 23 (S.C. Oct. 27, 2021).

Witness Horii also presented compelling analysis regarding the expected T&D benefits of Solar PV. While he may used a methodology that is more granular than the existing Commission-mandated standard, there was no meaningful dispute that his analysis was more accurate. It was also consistent with the spirit of Order No. 2021-569 that "electrical utilities shall collect data with sufficient granularity to provide the Commission with *quantitative analysis* of avoided transmission and distribution costs." (emphasis added). A declaration of existing practice cannot substitute for an evaluation of the evidence, *Hamm v. Pub. Serv. Comm'n*, 309 S.C. 282, 289 (1992), and certainly with respect to this case, Witness Horii has shown that there is strong support to use his T&D analysis and methodology as the best lens for understanding the actual cost-effectiveness of the Programs.

While the free-rider percentage issue is determinative for the UCT and therefore the Programs fail the requirements of Order Nos. 2021-32 and 2021-33, we would note that it is not appropriate to incorporate the benefits of the Winter BYOT Program. As a threshold matter, if Duke Energy wanted the Commission to assess the cost-effectiveness of the Programs based on inclusion of the Winter BYOT costs and benefits, it should have made those calculations the basis of its Application. It did not. Instead, it chose to only introduce those results in rebuttal testimony. Therefore, for purposes of approving or denying the Applications, we look first to the four corners of the of the Applications. We believe this approach is consistent with basic considerations of fairness and transparency. Second, we find persuasive Witness Horii's criticisms of considering the cost-effectiveness of the Programs based on the cost-effectiveness of the Rooftop Solar incentive plus the Winter BYOT Program. Winter BYOT is already an approved, standalone EE/DSM program, and if Solar as EE cannot independently pass cost-effectiveness testing, Duke Energy has not met its burden to show that Solar as EE should be approved. Even if the Programs would increase Winter BYOT participation, Duke Energy has the burden to prove Solar as EE is cost-effective, which it has not done, and that a \$3,500 subsidy to install Solar PV is a cost-effective way to increase Winter BYOT participation, which it has not done nor attempted to do. (*See* Tr. P. 463.24-25). To the contrary, the cost-effectiveness results, by showing that Winter BYOT increases the cost-effectiveness of Solar as EE, seem to show that Solar as EE decreases the cost-effectiveness of the Winter BYOT program.<sup>14</sup> (Tr. 463.14-15).

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<sup>14</sup> For similar reasons, we do not believe it is appropriate to average the cost-effectiveness results for the Programs across DEC and DEP. If the Program is cost-effective in one jurisdiction, but not in the other, then the Programs should only be approved where it is cost-effective.

Additionally, we are not persuaded that the difficult-to-quantify non-energy benefits of Solar PV warrant a different conclusion with respect to the cost-effectiveness of the Programs. As cited by the parties, these benefits include, among other things, “intangible benefits of customer energy independence and resiliency, and environmental responsibility,” and the benefits to customers of owning “premium equipment” or believing that a measure makes their real estate more valuable. (App. p. 6; Hr’g Ex. 1, pp. 6, 19; Moore Surr. p. 9). Many of these non-energy benefits appear at face value to have been already taken into account by the customer – regardless of this Commission’s decision to approve any incentive – and therefore do not represent the kind of positive externalities that an incentive is necessary to capture. But more importantly, sound regulatory policy requires that the party asserting such benefits take clear and substantial steps to accurately quantify, provide a framework for quantifying, or take other steps to meaningfully explain the nature and magnitude of these benefits. *See, e.g., In re Blue Granite Water Company*, 434 S.C. 180, 187 (2021) (“A decision by the PSC is arbitrary if it is without a rational basis”) (citation omitted) (internal punctuation omitted). Otherwise, this Commission is left without a rational, objective framework on which to assess those benefits. The fact that there may exist certain benefits that are difficult to quantify, while perhaps relevant in decisions made at or very near the margin, is not a basis for assigning dispositive weight to such benefits where the most reliable and probative UCT and TRC results clearly show a proposed program is not cost-effective.

We are also not persuaded that Duke Energy’s assumptions in its cost-effectiveness tests are as conservative as the Company has suggested. For example, one important assumption Duke Energy made to calculate the benefits of the Programs was a 25-year life of Solar PV, but we recently recognized that a 20-year lifespan for Solar PV is appropriate in Order No. 2021-569. (Tr. p. 49.6, 553). Witness Horii also thoroughly discussed the ways in which Duke Energy’s cost-

effectiveness calculations overstated the benefits. Being “conservative” cannot be a substitute for rigor. At any rate, the extent to which the Companies’ cost-effectiveness inputs were “conservative” is really only important in close cases, which this is not.

Nor do we believe that Duke’s RIM and PCT results warrant a different conclusion. First, there is no dispute that in general, “RIM isn’t a test that we focus on.” (Tr. p. 563). Further, Witness Duff only testified that Duke Energy’s RIM and PCT scores were at or near passing when testing was performed that included the effect of Winter BYOT program. (Tr. p. 576.14). As discussed above, it is more appropriate to assess the cost-effectiveness of the Programs without inclusion of Winter BYOT. Additionally, Duke Energy did not present its RIM or PCT scores in the Applications or in direct testimony, but only in rebuttal testimony. (*See* Hr’g Ex. No. 1; Tr. 49, 57). As the parties with the burden of proof, the Companies should have provided all basic cost-effectiveness results at the earliest opportunity if those results were dispositive to the request for approval of the Programs.<sup>15</sup> Further, because the most reliable and probative UCT and TRC results are not close to passing, we do not believe that the RIM and PCT test results, which under the rosier view are marginally positive, should be determinative of cost effectiveness. (*See also* Tr. p. 463.26) We believe that the starkly negative TRC and UCT results are ultimately dispositive of cost-effectiveness. (Tr. pp. 463.26:5–8, 559:13–14; *see also* Tr. pp. 459.31:5–8, 482:12–20, 545:12–20, 984:15–17).

We also find and conclude that the law and Commission precedent are clear that where testing shows that a proposed program is clearly not expected to be cost-effective, such a program cannot be approved. S.C. Code Ann. § 58-37-20 (“Commission may adopt procedures that

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<sup>15</sup> We also note that Duke Energy in its Motion to Affirm Legal Standards, as well as prefiled testimony from Witness Duff, requested that the Commission *not* consider cost-effectiveness test results such as those of the RIM and PCT.

encourage electrical utilities . . . to invest in *cost-effective* energy efficient technologies and energy conservation programs.” (emphasis supplied); *see also* Order No. 2021-32; Order No. 2021-33 (requiring proposed programs to have UCT results of at least 1). Deferring cost-effectiveness review to the EM&V stage effectively absolves the utility of carrying its burden to show that a proposed program is expected to be cost-effective. Further, deferring cost-effectiveness assessment to the EM&V process does not appear to us to be an effective or efficient use of resources for a program that is not reasonably expected to be cost-effective. (*See, e.g.*, Tr. pp. 499–500). And the incentive of the utility at the EM&V stage – to demonstrate cost-effectiveness or forgo net lost revenues and program performance incentives – could reasonably be expected to compound the administrative complexity and the regulatory resource investment required to conduct and review EM&V for a program such as the one currently before the Commission.

For these reasons and based on our careful consideration of the evidence of record, we decline to adopt the recommendations of Duke Energy and the Clean Energy Intervenors to approve the Program absent a substantial showing of cost-effectiveness and to defer cost-effectiveness assessment to the EM&V and annual rider true-up processes.

## **VI. FINDINGS OF FACT AND CONCLUSIONS OF LAW**

1. We find that the Programs are subject to the requirements of both S.C. Code Ann. §§ 58-37-20 and 58-40-20.

2. We find that the final sentence in S.C. Code Ann. 58-40-20(I) does not apply exclusively to lost revenues associated with Commission Order No. 2015-194.

3. We find that Duke Energy may not recover lost revenues incurred as a result of these Programs and that lost revenue is lost revenue, whether it is derived from “NEM total generator output” or “reduced grid energy usage due to self-consumption.”

4. We find it would be unlawful to pass these Programs' lost revenues onto the Companies' customers.

5. We find that the Companies failed to meet their burden of proof that these Programs qualify as EE.

6. We find that Duke Energy has failed to show clear and meaningful synergies from the proposed pairing of Solar PV and the Winter BYOT program that would support a fundamental shift in our understanding of EE.

7. We find that the Companies' free ridership estimates are undervalued and that ORS's free-ridership estimates more accurately reflect the reality of these Programs' expected free-ridership.

8. We find that Duke Energy has failed to carry its burden of proving by a preponderance of the evidence that the Programs will be cost effective.

9. We find that it would be inappropriate to allow these Programs' costs to be passed onto the Companies' customers without the sufficient showing that the Programs are expected to be cost effective.

## **VII. ORDERING PARAGRAPHS**

IT IS THEREFORE ORDERED that based on the above stated findings and conclusions,

1) Duke Energy's Smart Saver Solar as Energy Efficiency Programs as proposed in the Applications is denied; and

2) The recovery of net lost revenues associated with Solar Choice customer-generators as proposed in the Programs are not permissible under Act No. 62.

In accordance with the above stated Findings and Conclusions, and based on the greater weight of the evidence, we find as a matter of law that our rulings in this matter are in accordance with the stated intent of Act No. 62.

BY ORDER OF THE COMMISSION:

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Justin T. Williams, Chairman

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Florence Belser, Vice-Chairman

(SEAL)